Cognition and Management

Managerial Cognition and Organisational Performance

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Abstract

This thesis is about management. A review of the management literature revealed two under-researched areas of management – thinking and performance. Additionally, cognition has received increasing attention in management and other social sciences. This thesis addresses these issues by asking, "How does the manager's cognition effect their performance?"

The literature review discussed cognition in the organisational literature, cognitive structures, process views of managing and organising, performance in the organisational literature, and some relevant empirical literature. The literature was combined to refine the original research question. There are two very different ways of conceiving cognition in the organisational literature. The first – cognition as a variable – asks, "What is the relationship between the manager's cognitive map and the performance of their organisation?" The second – cognition as part of the process of managing – asks, "What part does the manager's cognitive play in the their management of staff performance?" The methodology described cognitive mapping and interviews as the methods to be used for collecting the data. It then described the process used to collect the data and the research site.

Three empirical chapters form the heart of this thesis. To answer the first question, the managers' cognitive maps were analysed. This analysis revealed that (1) the managers had reasonably similar cognitive maps and (2) higher performing managers tended to have more sparse cognitive maps than lower performing managers. The second analysis looks at the role of the manager's cognitive script in managing a poor performing staff member. The managers share a common script, which described a three stage process of dealing with this situation. The third analysis looks at the influence that the organisation and the manager's cognition exert over one another. This analysis introduces a structuration model of the organisation.

The discussion reviews the findings from the earlier chapters, then focuses on the diversity of management. It argues that to understand management, we need to embrace this diversity and recognise the complexity and contradiction that are unavoidably parts of managerial work.

Section One

Introduction

"What is your thesis on?" That question seems to be the first response of someone to discovering that I am doing a Ph.D. Upon hearing that question, I usually reply "Managerial Cognition," followed with what I hope is a wry grin. I then continue to explain: "I am looking at how managers think, and how that effects the way they do their job." From there, the conversation can go off in any direction, depending on the mood I am in, and to whom I am talking. This seems like a good place to start.

To restate that reasonably loose statement in a more formal sense, this thesis is principally about management. The aspect of management that is being focused on is managerial cognition – how managers think. This thesis began with the idea that any understanding of management should be linked to performance – an idea that has been subsequently modified. Putting all of these ideas together produces the question, "How does the manager's cognition effect their performance?"

This thesis is an attempt to answer that question. The purpose of this section is to introduce this question and provide an overview of the chapters that make up this thesis. Before these things are done, it is important to explain the structure of this thesis.

Instead of the traditional arrangement of chapters associated with a Ph.D, this thesis is divided into five sections. Each section contains several relatively short chapters. The reason is that this research has drawn on a variety of different ideas and themes to explore managerial cognition. The somewhat fragmented structure reflects the fragmented nature of the ideas that are being integrated into this thesis. This, in turn, reflects the fragmented nature of both the cognition and management fields. Each chapter is relatively independent and could, in most cases, be read out of order without loosing much meaning. Each section will begin with a brief, general introduction to the chapters within it.

With that clarifying point made, it is now time to review the sections and chapters that make up this investigation.

Chapter One

Chapter Summary

This chapter provides a summary of the sections and chapters that comprise this thesis. Each section of the thesis is described in terms of its purpose within the thesis as a whole and the chapters that it contains.

Section One: Introduction

The purpose of the first section is to introduce the thesis. This introduction is intended to orient the reader with respect to the topics covered in this thesis. It will include a general introduction to the thesis, the structure of the thesis, introductions to the main topics – management and cognition – and an introduction to the research process. This section will provide a broad backdrop against which the rest of the thesis can be interpreted.

Chapter Two: Management

The purpose of Chapter Two is to introduce and define management. It begins by explaining the importance of management in today's society. It then reviews the literature about management. Drawing on four reviews of management, it identifies the general characteristics of managerial work. These reviews also discuss two important and under-researched topics in management – cognition and performance.

Chapter Three: Cognition

Chapter Three introduces and defines cognition. Emphasis is placed on understanding why cognition has become an important topic in management in the last few years. The rise of cognition in organisational and management research is outlined. This rise is attributed to an increased interest in cognition in social psychology, which is, in turn, a product of the emergence of a multi-disciplinary field known as cognitive science.

Chapter Four: The Research Approach

Chapter Four provides the basis upon which the research approach will be selected and assessed. It restates the research question and discusses key implications of this question. It then describes the nature of the research. This involves defining the key assumptions, explaining the type of research and introducing qualitative research.

Section Two: Theory

This section introduces the central theoretical ideas that underpin this thesis. It begins with a discussion of how cognition has been conceived in the managerial and organisational cognition literature. It then discusses two different conceptions of cognition – cognition causes behaviour and cognition and the organisation – and performance. These ideas are used to organise both the review of the empirical literature and the rest of the thesis. The research question, first introduced in Chapter Four, is revised throughout this chapter. The culmination of these revisions, incorporating the theoretical ideas presented here, concludes in this section.

Chapter Five: Cognition in Organisations

Chapter Five introduces the reader to the managerial and organisational cognition literature. The chapter reviews the managerial and organisational literature, focusing on two different ways of conceiving cognition. The first is to view cognition as a variable that exerts causal influence over behaviour. The second is to view cognition as an integral part of the organising process. These two views will frame the remainder of the thesis.

Chapter Six: Cognition Causes Behaviour

The first view of cognition is that it is a variable, which exerts causal influence over behaviour. Chapter six describes this way of understanding cognition. Models that show how cognition causes behaviour place a lot of emphasis on cognitive structures. It reviews two cognitive structures that are frequently used in managerial and organisational cognition research: cognitive maps and cognitive scripts. Both cognitive structures are used in the thesis.

Chapter Seven: Cognition and the Organisation

The second way of understanding cognition is to see it as an integral part of the organisation. Chapter Seven describes this way of understanding cognition. Since cognition is seen as an integral part of the organisation, what the organisation and management are become much more important. For this reason, this chapter describes process models of organisation and management. This description emphasises the role of cognition in these models.

Chapter Eight: Performance in Organisation Theory

Chapters Six and Seven describe ways of understanding cognition. Chapter Eight describes another central variable in this thesis: performance. It begins by looking at the link between managerial and organisational performance. From there, performance is presented as a complex concept; different perspectives lead to different definitions of performance. The discussion of performance shows that performance can be considered as either an outcome of the organisation, a process related to organising, or as the performance of individual staff.

Chapter Nine: Some Empirical Literature: Cognition and Performance

The preceding chapters are oriented towards theoretical work. Chapter nine reviews the empirical literature on the relationship between managerial cognition and performance. While there has been a lot of research on managerial and organisational cognition, relatively little of it looks at the topic of managerial cognition and performance. This literature is discussed in terms of the different conceptualisations of cognition and performance presented in this section.

Chapter Ten: Review and Research Questions

The final step in reviewing the literature is to provide an overview and synthesis of the literature reviewed. This overview is used to refine the research question posed at the beginning of this chapter. The original question is refined into two questions, each reflecting a different way of understanding cognition and performance.

Section Three: Methodology

This section describes the methodology used to perform the research and the techniques that to ensure that the results are trustworthy. It includes describing a cognitive mapping technique, describing interviews as a research tool, describing the research process used in this investigation, and describing the site at which the research was undertaken. Chapters Eleven and Twelve review research tools that can be used for this type of research, Chapter Thirteen describes how these tools were used in this thesis, and Chapter fourteen describes the research site.

Chapter Eleven: Cognitive Mapping

This chapter describes the method of cognitive mapping used in this thesis. It begins by describing several different approaches to cognitive mapping used in the managerial and organisational cognition literature. These approaches are described in terms of the data sources used and the mechanisms for ensuring that the data is trustworthy. The approaches are compared, and the most appropriate approach for this thesis selected. This approach is then described in more detail.

Chapter Twelve: Interviewing

This chapter will look at the interview – what it is and how it can be conducted. It will then describe techniques for analysing for interview data. The final issue to be discussed is data quality. Data quality is a term used to describe how good or trustworthy the data and analysis is. The criteria by which this quality should be judged are outlined and specific techniques that can used to ensure data quality are described.

Chapter Thirteen: Research Process

Chapters Eleven and Twelve describe tools for data collection and analysis. This chapter describes the actual process by which the data is collected and analysed. In this chapter, a first person narrative is adopted in an attempt to communicate the experience of performing this research. It describes the process of gaining access to the organisation and performing the interviews. This description includes a commentary on the experience of this process.

Chapter Fourteen: Research Site

Chapter Fourteen introduces the reader to the organisation. It describes the organisation in terms of its size and structure. It describes some of the main issues facing the organisation. Finally, it describes some of the tools that the managers have available to them for managing their staff.

Section Four: Empirical Analyses

The fourth section presents three different analyses of the data collected for this thesis. The first two of these addresses the research questions asked at the end of Section Two: relating cognitive maps to performance and using cognitive scripts to understand managing poor performance. Each of these chapters describes the specific method used to analyse the data and the implications of the analysis. The third chapter takes the issues raised at the end of the previous chapter and elaborates them in more detail to describe the relationship between cognition and the organisation.

Chapter Fifteen: Cognition and Performance

Chapter Fifteen is the first empirical chapter and addresses the question, "How does the manager's cognitive map effect the performance of their branch?" This chapter begins by discussing performance and management and cognition and management. It then discusses methods of representing and analysing cognitive maps. It applies these methods to the manager's cognitive maps, comparing the cognitive maps of high, medium and low performing managers. From these analyses, several conclusions are drawn, which provide a set of propositions for future research.

Chapter Sixteen: Managing Poor Performance

Chapter Sixteen is the second empirical chapter and addresses the question, "How does the manager's cognitive script effect their management of poor performance?" This chapter describes the importance of staff performance to managers and organisations. It then describes the method by which the data was analysed to identify and confirm the cognitive script. The script is then described, its role in managing poor performance is analysed, and some implications of the analysis are introduced.

Chapter Seventeen: The Script and The Organisation

The final empirical chapter takes a finding common to both chapters – the similarity between the managers' cognition – and explores it in more detail. Using the cognitive script for managing poor performance as an illustrative example, this chapter shows how the organisation influences this script. It then shows how the script influences the organisation. These two influences are combined into a structuration model of the organisation, with management as the bridge between structure and process. Chapter Seventeen concludes by discussing the implications of this model.

Section Five: Discussion

The discussion brings the ideas presented in the thesis together into one place. It consists of two chapters. Chapter Eighteen summarises the individual chapters in the thesis, emphasising the results from the individual empirical analyses. Chapter Nineteen discusses the insight produced by the thesis as a whole and what this insight means for understanding management.

Chapter Eighteen: Recapitulation

The recapitulation reviews what has been covered in this thesis. In most respects, it echoes this introductory chapter. It provides a summary of the chapters in the thesis – discussing each chapter's purpose and main issues. The recapitulation differs from the introduction in that it places more emphasis on the results produced by the empirical analyses.

Chapter Nineteen: Discussion

The final chapter attempts to make sense of the thesis as a whole. It brings the ideas of the thesis together. Instead of focusing on the specific results, which are discussed in each of the individual chapters, it emphasises the diversity of the thesis. The implications of the research reported in this thesis for management are discussed. This discussion focuses on theoretical, methodological and practical implications. Chapter Nineteen concludes the thesis by giving an answer to the question: "How does the manager's cognition effect their performance?"

Chapter Two

Management

Management is a pervasive feature of modern life. It has risen on the back of the industrial revolution to become one of the most powerful institutions in our society. The heart of the power of the managerial institution is the organisations within which managers function.

This chapter introduces management and explains why management has become such a powerful institution in today's society. It defines management and uses four reviews of the empirical managerial literature to identify the main themes and findings from past management research. These reviews also introduce two important areas that need further research – managerial cognition and managerial performance.

Introducing Management

Mintzberg (1989) succinctly highlights the importance of organisations in our lives by arguing that our society is a society of organisations. From our first breath to our burial we are constantly interacting with, working in, and living off organisations. The overwhelming majority of production, including the necessities of life, occurs through organisations (*see also* Alvesson and Willmott 1996; Reed 1992; Perrow 1986). The inescapable grasp of organisations dominates the society within which we live. And within these organisations, we find managers.

The importance of organisations is linked to the emergence of greater levels of division of labour and the industrialisation of societies. Barnard (1938) defines organisations in terms of co-operative activity, a task that requires more than one person to complete it. This division of labour, which increased in prevalence through technological developments, means that today's society requires the organisational machinery to perform the most basic task of providing for its members.

Reed (1992) provides a useful summary of the industrial society view of modern society. In this view, "both the increasing scale and complexity of industrial production were seen to generate a form of administrative organization and control" (Reed 1992: 12). This administrative control – organisations and their managers – was seen to dominate society. Organisations grew beyond the ability of the owner to control them. Their power was taken by the managers who were responsible for the organisations. Reed continues this argument:

> Effective corporate control was seen to pass out of the hands of private owners into the laps of managerial technocracy that was forced to attend to the impact of their policies on a diverse, and often bewildering, array of interest groups which had to be moulded into a coherent and sustainable public constituency. The dominance of the capitalist class was giving way to the increasing power of a managerial technocracy (Reed 1992: 13).

These arguments, along with others like them (*see* Alvesson and Willmott 1996; Inkson and Cammock 1995; Watson 1994a), make the point that managers dominate organisations and organisations dominate industrial society. There are implied responsibilities placed on managers not only to the owners of the organisations, but to all members of society. The managers need society to manage, and the organisations they manage are an important part of today's society (Giddens 1984; Whittington 1992). Therefore, the institution of management is a very powerful one in today's society.

What Management Is

Defining management is not easy. Whitley (1984) argued that this was because of the fragmented nature of management. Alvesson and Willmott (1996) pick up on this point and attempt to describe the managerial job:

> Managers are employed in diverse organizations. They perform a wide variety of roles and tasks; they are trained and located within different specialisms; and they work at different levels in organizational hierarchies. They also work in uncertain conditions, are in possession of imperfect information and are under pressure to be responsive to a plurality of demands (Alvesson and Willmott 1996: 9).

Some authors define a manager as anyone above a certain level in the organisation (Hales 1986). This definition is not clear, and it raises the issue of distinguishing between the manager and managerial work. For example, Stewart (1989) notes that people in managerial positions are often engaged in non-managerial tasks and people in non-managerial positions often perform managerial tasks. Simply using the level in an organisation does not help us define what management is. An alternative definition is needed.

Agents and Stewards

There are two quite different ways of conceiving management. The first, agency theory, is derived from economics. In agency theory, the manager is seen as the agent or representative of the owners of the organisation. Furthermore, consistent with economic assumptions, both parties are seen as being self-interested utility maximisers. This produces the agency problem, which occurs when the principal's (the owner's) and the agent's (the manager's) interests conflict. This problem produces costs for the principal of ensuring that the agent is carrying out their interests – agency costs (*see* Eisenhardt 1989). Agency theorists suggest mechanisms to minimise these costs and thereby increase efficiency. These mechanisms include compensation and governance structures.

The stewardship theory of management is derived from sociology and psychology. This view holds that the manager is acting in the best interests of the organisation. Rather than being strictly self-interested agents, the managers are stewards and act in the best interests of the collective. By acting in the best interests of the organisation, the managers thereby serve the interests of the owners (Davis, Schoorman and Donaldson 1995). However, because organisations do not simply serve the owners, the manager is also responsible to a wider constituency (Fox and Hamilton 1994).

These two views are vastly different from one another. It is important to select one approach. Based on the introductory comments, drawn largely from sociology and psychology, stewardship seems to be the more appropriate theory. The stewardship view is consistent with the discussions of management by Reed (1992). With this issue resolved, it is now time to answer the question, "What is management?"

What is Management?

Management involves achieving things through the efforts of others (Heller 1971; Stewart 1986; Cammock 1991). The manager is usually held responsible for others' performance of tasks (Hales 1986). This means that the manager does not do the work of the organisation; they are responsible to make sure that it is done by other people.

A similar, but broader, definition is proffered by Watson (1986; 1994a). He defined management as "organising: pulling things together and along in a general direction to bring about long-term organisational survival" (Watson 1986: 41). He later expands this definition, describing management as an occupation rather than a function. The occupation of management is "concerned with holding together and sustaining work organisations" (Watson 1994a: 38). This view, which defines management in terms of its role within the organising process, is common in sociological writings on management (Watson 1994a; Reed 1984; Willmott 1987; Hales 1986; Whitley 1989).

Both of these definitions imply that managers are in some way responsible for the organisations in which they work. In the first definition, managers are responsible for the efforts of others. In the second view, they are responsible for the survival of the organisation. The responsibility implied by these definitions reinforces the initial argument about the importance of management in today's society. Organisations, as the principal means of production, are critical to industrial society. Managers, as the guardians of the organisation, are critical to and responsible for the organisation.

Studying Management

The importance of management in today's society is one of the motivations behind numerous studies of management that are available. All of these studies have provided some insights into the nature of the manager's work. These studies have been extensively reviewed elsewhere (*eg* Martinko and Gardner 1985; Hales 1986; Stewart 1989). The key findings identified in these reviews are summarised and some of the suggested gaps in this literature are discussed.

Studies of Management

Management has been studied in a variety of different ways, using a diverse range of methods and assumptions. Many of the early works were written by managers (*eg* Fayol 1916; Barnard 1938), these gave way to academics (*eg* Simon 1947; Chandler 1962; Mintzberg 1973). The studies of managerial work and behaviour have been well summarised in three reviews by Martinko and Gardner (1985), Hales (1986) and Stewart (1989). Table 2.1 summarises the key findings regarding management identified in these reviews.

Themes from this Research

Three key themes can be derived from this research, summarised in Table 2.1. The first two were identified clearly in Martinko and Gardner's (1985) review and reiterated by the others. These are the quantity and variety of managerial activities and the forms of communication preferred by managers. The third is less evident in Martinko and Gardner, but covers a variety of issues identified by both Hales (1986) and Stewart (1989). They highlighted the importance of the context of managerial work.

Managerial work is characterised by "variety, brevity and fragmentation" (Martinko and Gardner 1985: 685). At the same time managerial work, particularly at senior levels, involves a high volume of work (Mintzberg 1973; Kotter 1982). There is also variety in the volume of work both between different jobs and within a single job across time. Collectively, these findings have lead to managerial work being characterised as reactive and non-reflective (Stewart 1989).

Table 2.1 Key Findings of Management Research

Martinko and Gardner (1985)	*Hales (1986)*	*Stewart (1989)*
Activity levels: • High number of activities per day. • Activities characterised by variety, brevity and fragmentation. Interaction Patterns: • High proportion of time spent in verbal communication. • Low frequencies of written communication.	Facts of managerial work: Combines specialist/professional and general 'managerial' elements Substantive elements are liaison, staff management and responsibility for a work process. Work elements vary in terms of duration, timespan, recurrence, unexpectedness and source. Day to day trouble shooting and - *ad-hoc* problem solving consume much of the manager's time Asking or persuading in face to face verbal communication is a common activity for managers. Little time is spent on any one activity. Planning takes place in the course of other activities. Time is spent in explaining what they do, informal relationships and politicking. Contradictions, cross-pressures and conflicts are common. Managers need to reconcile social and technical conflict. Managers have considerable choice in what is done and how. They negotiate the boundaries of their work.	Variation and contingency: managers' jobs vary accordi to their setting. Choice and negotiation: managers have considerable flexibility in content and styl of work. Pressure and conflict which result in compromise and negotiation. Reaction and non-reflection.

There is also a consensus on the fact that managers spend a great deal of their time involved in verbal communication and relatively little time involved in written communication. Hales (1986) points out that while communicating, managers are often asking or persuading. Kotter's (1982) finding that managers get things done in these communications is typical of many studies. There is evidence of variance in the patterns of communication, particularly with whom the manager is communicating. Some managers spend a great deal of time communicating with people outside the organisation. Others spend more time communicating with people inside the organisation (Martinko and Gardner 1985).

Finally, there is the importance of context in the manager's work. Context refers to the situation in which the managerial role is embedded. It can include several different aspects. Mintzberg (1973) describes the manager as having a liaison role, where they interacted with people outside their organisational unit. Willmott (1984) refers specifically to the role of managers in modern society and the socio-political implications of this role. Martinko and Gardner (1990) found relationships between environmental and demographic variables and variations in managerial behaviour. In Table 2.1, Hales (1986) refers to the conflict between social and technical issues and the manager's need to justify their actions. Stewart (1989) includes pressure and conflict as a fundamental part of the manager's job. All of these findings, and a variety of others, refer to different aspects of how a manager's job is influenced by the context of their job (*eg* Knights and Willmott 1992).

Future Research

In addition to summarising the past findings, all three papers provided a set of ideas for future research. In addition to these reviews, Mintzberg (1994) attempted to provide an integrative model of the manager's job that indicated areas he considered important for future research. Two key themes needing theoretical development that all four papers suggested were relating the findings regarding managerial work to performance and the role of cognition in management.

The Manager and Their Performance

Martinko and Gardner (1985: 692) lamented the lack of connection between research in management and managerial performance. They claimed, "the majority of later studies" failed "to relate behaviors to effective performance". They argued that the absence of performance in studies of management led to limited findings which did "not provide the guidance that managers need in order to understand, control and predict the effects of their own behavior in their environments" (Martinko and Gardner 1985: 692).

Hales (1986) is less concerned with performance itself than with the lack of a basis of comparison to separate good and bad management. He suggests that this standard exists "in an understanding of how the management function is constituted within the overall workprocess of an organization" (Hales 1986: 107). He argues that this standard may be "some absolute, objective, bench-mark" or "a more contingent form" (Hales 1986: 107). He then offers a variation of the contingent form using the expectations of the manager. In this view "good or bad practice may then be conceived in terms to which managers' *performance* matches others' *expectations*" (Hales 1986: 108, *original emphasis*). In this sense, managerial performance may be a social construction produced by interactions between people.

Stewart (1989: 7) argues that there is a need to "explore ways of distinguishing what makes for effective management". Mintzberg (1994) begins by arguing that the dissension in the literature regarding what makes a good manager is a result of a poor understanding of the managerial job. Both of these authors suggest that identifying the basic nature of a manager's work is a necessary prelude to defining good management.

Each of the reviews shows changes in the perceptions of performance. Martinko and Gardner's (1985) argument suggested that inclusion of performance was necessary to advance understanding of the manager's job. Hales (1986) and Stewart (1989) argue that we needed better ways of conceiving managerial performance before we could understand management itself. Mintzberg (1994) argued that a better understanding of the manager's job was necessary to understand managerial performance. All of these papers share an emphasis on performance as an important issue in the study of management. They disagree, however, on how this performance should be understood. Critical to enhancing an understanding of performance is an understanding of the manager's work and their jobs. One way of refining this understanding is the use of cognition as a way of modelling managerial work.

Cognitively Flavoured Comments on Management

All four reviews contained at least some reference to the manager's cognition. One of Martinko and Gardner's (1985) conclusions is that "the observation of overt managerial behaviors... is an incomplete process that only touches the tip of the iceberg" (Martinko and Gardner 1985: 688). The missing component was the manager's cognitive processes; the exclusion of these processes meant that "some of the most important competencies of managers are ignored" (Martinko and Gardner 1985: 690).

Hales (1986) looks at a broader scope of managerial research than Martinko and Gardner (1985). One of his points picks up on the well-documented disparity between the seemingly inefficient work habits of managers and their effectiveness (*see* Mintzberg 1973). The only solution Hales (1986) describes for this contradiction is Kotter's (1982) three task model. One of Kotter's three tasks is to build an agenda, or a "loosely connected set of goals and plans that address their long- medium- and short-term responsibilities" (1982: 160). The development of the manager's agenda is "a process that is largely internal to their minds" (Kotter 1982: 161). A later study on managerial agenda setting found that these agendas consisted of highly interconnected items (Bowman and Bussard 1992). They concluded by describing the agendas they found in their study:

> The agendas are characterized by both content and process. They are both cognitive and action based. They impact on the formulation and implementation of strategy. They are not lists of decisions, but rather consist of activities, goals, and concerns (Bowman and Bussard 1982: 88).

Stewart (1989) uses Hales (1986) and Martinko and Gardner (1985) as the substantive content for her review of research on managerial jobs. Instead of repeating the literature already covered in these earlier works, she shifts her attention to the future: how should studies of management develop. One of Stewart's suggestions was to "study how individual managers think about their work and their jobs" (1989: 8). She went on to describe this as "the most open-ended, and potentially the most difficult and exciting of the possibilities" in her review (Stewart 1989: 8).

The final review attempts to merge the developments of understanding in management into an integrative theoretical framework (Mintzberg 1994). At the heart of this model is the person in the job, who is comprised of values, experience, competencies, knowledge, mental models, and style. The frame of the job is the next layer. It is the "mental set the incumbent assumes to carry it out" (Mintzberg 1994: 12). The next layer is the agenda, which incorporates Kotter's (1982) ideas (Mintzberg 1994). These three layers of the managerial job highlight the role of the manager's cognition – knowledge, mental models, and metals sets – on the manager's job.

These reviews all give managerial cognition an important role in understanding management. They highlight the increasing importance given to cognition in the studies of management. This role of cognition in management is paralleled by the development of a field known as "managerial and organisational cognition" (Schneider and Angelmar 1993). A field which, in turn, was influenced by the development of a multi-disciplinary cognitive science (Gardner 1985). Cognition has emerged in the latter half of the twentieth century as a significant field.

Chapter Three

Cognition

This thesis is about management. The aspect of management it is concerned with is cognition. The previous chapter introduced management. In this chapter, cognition is introduced. The main emphasis of this chapter is to show how this thesis relates to the broader literature on cognition. It does this by introducing the multi-disciplinary field of cognitive science and then discussing cognition in the managerial and organisational literature. Finally, cognition is defined and some of the things studied as cognition will be listed.

The Rise of Cognition

Gardner (1985) provides an excellent review of the emergence of cognitive science. Cognitive science is a multi-disciplinary field, which includes psychology, linguistics, anthropology, philosophy, computer science and the neurosciences (Gardner 1985; Hunt 1989; O'Nualláin 1995). Cognitive science attempts to combine the findings from these, and a few other, fields of inquiry.

Each of the contributory disciplines has something to say about the ways the mind works. From psychology comes cognitive psychology including perception and memory focusing on internal structures of the mind (*eg* Neisser 1976). Linguistics contributes the relationships between knowledge, thought and language (*eg* Chomsky 1957). From anthropology came the comparison of cognition across cultures and species (*eg* Hutchins 1995). From philosophy came speculations on the nature of mind and knowledge (*eg* Searle 1983) as well as a focused, critical review of the other disciplines in cognitive science (*eg* Dennett 1992). From computer science, we have artificial intelligence and problem solving (*eg* Newell and Simon 1972). And from the neurosciences, we have an understanding of cognitive processes at the biological level (*eg* Churchland 1986).

The integration of all of this diversity is far from complete. Hunt (1989: 603) comments that cognitive science is a perspective, rather than a field. For this reason, he argues it is "impossible to review 'current findings' in the field". Cognitive science attempts to establish dialogues between individuals trained in the various specialities so that knowledge and insights may be shared.

Cognitive science has produced a wide variety of diverse findings. These findings can be compared on a variety of continuums. For example, the hard sciences of artificial intelligence and neurosciences can be contrasted with the humanities represented by anthropology and philosophy. Another example of diversity involves issues of affect, motivation, and emotion. From all of this diversity, Gardner (1985: 38-45) outlines five key features of cognitive science which serve as a useful definition of the cognitive science perspective.

1. A distinctive cognitive level of analysis, separate from biological and social levels of analysis.
2. The central role of computers understanding cognition.
3. Limited attention to affect, context, culture, and history.

4. Commitment to interdisciplinary contributions to understanding cognition.

5. Based in classical philosophical problems of mind and knowledge.

The first two of these points are the "core assumptions of the field"; the remaining three are "methodological or strategic features" (Gardner 1985: 38). These points serve as a useful summary of cognitive science for the purposes of this thesis. From here, the issue to consider is the role of cognition in the studies of organisations and managers.

Managerial and Organisational Cognition

Gardner (1985) traces the historical development of cognitive science to a series of symposia and publications in the late 1940s and 1950s. This resulted in the slow development of the interdisciplinary understanding of cognition that gained progressively more and more momentum through the 1960s and 1970s. Cognitive science is still a young area of study, but it is also a very active one. This activity has inspired a resurgence of interest in cognition from the constituent fields of cognitive science and other related disciplines. This resurgence is one of the factors contributing to the interest in cognition in organisations (Walsh 1995; Lord and Maher 1991).

The link between managerial and organisational theory and cognitive science is strongest through cognitive psychology and social psychology (Walsh 1995; Lord and Maher 1991). Most ideas from cognitive science that influence managerial and organisational cognition first influence social psychology. Cognition, particularly schemata and information processing, dominates social psychology (Markus and Zajonc 1985).

It is largely from cognitive psychology and social psychology that the idea of mental representations – schemata – appeared in the organisational literature (*eg* Lord 1985; Lord and Foti 1986; Lord and Maher 1991). The most common forms of cognitive schemata used in social psychology are the same as those used in managerial and organisational cognition: cognitive scripts (*eg* Gioia and Poole 1984) and cognitive categories (*eg* Dutton and Jackson 1987; Porac, Thomas and Baden-Fuller 1989; Hodgkinson 1997). However, the use of schemata and other cognitive concepts in organisation studies is also strongly influenced by cognitively oriented sociologists and social philosophers (*eg* Schutz 1967; Goffman 1974).

Managerial and organisational theory paid relatively less attention to other parts of cognitive science. There are a few exceptions. Some research on expert systems in artificial intelligence influenced decision-making research (*eg* Day and Lord 1992). Some attention has been paid to philosophical speculations on the nature of mind and knowledge, although these are more frequently based in methodological terms (*eg* Burrell and Morgan 1979; Morgan 1986; Lincoln 1985). The anthropological idea of cognitive hierarchies has found its way, via psychology (*eg* Rosch 1978), into organisational theory (*eg* Porac *et al* 1989).

This leaves the question of "what is managerial and organisational cognition?" For Schneider and Angelmar the project of managerial and organisational cognition is "to understand *what is organizational about cognition and what is cognitive about organizations*" (1993: 348 *original emphasis*). Walsh claims that the manager's job involves "absorbing, processing, and disseminating information" to "make decisions and solve problems" (1995: 280). Both of these reviews place great importance on research emphasising cognitive representations as a level of analysis. They also consider individual and collective levels of analysis (Walsh 1995; Schneider and Angelmar 1993). In this sense, they combine distinctive features of both organisation theory and cognitive science.

Things that are cognition

Both of these reviews were typical of many studies of managerial and organisational cognition. The term cognition itself was not clearly defined. One possible reason for this is that the term 'cognition' captures such a wide array of different ideas that a single definition undermines the usefulness of the concept. Each contributing discipline to cognitive science seems to adopt a different definition regarding cognition; in many cases cognition is never defined.

However, leaving one of the central concepts of this thesis completely ambiguous is not a very satisfactory state of affairs. Therefore, cognition will be given a general definition as well as a collection of topics that are commonly associated with cognition. Cognition is the process by which the mind acquires, processes, organises and uses knowledge and experience (*see* Bougon, Weick and Binkhorst 1977; Weick 1979b).

The *Annual Review of Psychology* publishes reviews on a topic they call thinking. Thinking can be seen as a form of high-level cognitive processing (Holyoak and Spellman 1993). Oden (1987: 203), when reviewing the topic of thinking, commented that "thinking, broadly defined, is nearly all of psychology; narrowly defined it seems to be none of it." In these reviews, thinking includes decision making, problem solving, learning, social understanding, concept identification, reasoning, and judgement (*eg* Holyoak and Spellman 1993; Rips 1990; Oden 1987). Other papers add to this list the topics of memory, perception, and expertise (*eg* vanLehn 1996; Simon 1992; Ericson and Lehmann 1996). Looking a little wider, and the topic of cognition can include social cognition – how an individual's cognition is related to their social behaviour (*eg* Markus and Zajonc 1985; Fiske 1993; Higgins and Bargh 1987; Levine, Resnink, and Higgins 1993). These topics are by no means definitive of cognition; they are intended to illustrate some of the range of issues associated with cognition.

Chapter Four

The Research Approach

The idea of exploring the manager's cognition and identifying any relationship to performance provided the genesis of this research. This chapter develops and refines this idea into a research approach. This development and refinement involves two key issues. The first is the research question used to guide this investigation. The second is the nature of this research. Describing the nature of the research includes the key assumptions regarding knowledge and the phenomena under investigation; the type of research; and qualitative research.

Research Question

The purpose of this thesis is to consider the mind of the manager. The initial idea for this research, stated in question form is "How does the manager's cognition effect their performance?" Implied within this question are a variety of issues regarding the nature of management, the nature of the organisation, the nature of cognition, and the nature of performance. Each of these subsidiary questions points to an extremely large and complex body of knowledge regarding them. None of them can be treated unproblematically; dealing with all of them is beyond the scope of any single piece of research. Consequently, it is necessary to prioritise the topics. This research is, first and foremost, investigating management. Managers act in the context of an organisation and have some responsibility for that organisation. In this study cognition is the particular aspect of the manager's work that is focused on, and performance provides the domain for this aspect to be investigated.

Now that the priorities of this research have been established, it is time to describe the basic nature of the research. This requires a description of the assumptions that underlie the research, the type of research, an introduction to and definition of qualitative research.

The Nature of the Research

Kuhn (1970) reviewed the history of science, focusing on subjects such as chemistry and physics. He argued that any piece of empirical research, along with any body of scientific knowledge, is founded on assumptions. These assumptions define the nature of reality, the types of problems that should be investigated and the way to approach these problems. Burrell and Morgan (1979) took Kuhn's (1970) ideas and demonstrated their applicability in the social sciences. They argued that any social investigation can be defined in terms of the assumptions regarding the nature of reality and knowledge (ontology and epistemology) and assumptions regarding the basic stability of the social reality.

These authors, and a plethora like them, make one common point (*eg* Deetz 1996; Guba and Lincoln 1994; Watson 1994b; Butler 1997; Numagami 1998). The assumptions, biases and preconceptions of the researcher powerfully influence any piece of research. The idea that the objective researcher is able to see all that is occurring and filter out these antecedent ideas is rejected. In this spirit, Watson (1994b: S79, *original emphasis*) comments:

> When I write about events and people in my research in a company I am calling ZTC I am not simply describing or reporting what happened. I cannot be objective in that way. But I am not making up what I am writing. Management researchers select, interpret, colour, emphasise, *shape* their findings. But they do not invent, say, the machines they write about or the experiences of redundancy of the people they interview.

Since Burrell and Morgan (1979), it has increasingly become important to define the assumptions upon which a piece of social research is resting. It is also important to describe the research in terms of its broad objectives and intention of the research. These definitions provide the basis of the research. They determine the way the research should be conducted, what theory needs to be read, and how the study's results should be interpreted. These definitions will locate this thesis in terms of the managerial and organisational literatures. They will also provide the basis from which the quality of the thesis should be assessed.

Key Assumptions

There are a lot of different ways in which one can differentiate research approaches. Most of these approaches describe a set of dimensions upon which research approaches vary. According their position relative to these dimensions, the research approaches are classified. The dimensions represent the key assumptions that underlie the research approach. Two well known efforts of this type describe research in terms of ontology, or constitutive assumptions; epistemology; and methodology (Morgan 1986; Guba and Lincoln 1994).

Ontology

Ontological assumptions define the nature of reality (Guba and Lincoln 1994). Morgan (1986) also adds the importance of assumptions regarding human nature to ontology. In this thesis, the phenomena being investigated are management, organisations, cognition and performance. All of these phenomena are assumed to be socially constructed (Berger and Luckmann 1966). That means that rather than having an existence independent of social processes, these phenomena are constituted by these social processes. Examples include Hoskings' (1988) views on management, Weick (1995a) on organisations, Hutchins (1995) model of cognition and Corvellec's (1995) ideas regarding performance.

There are three implications of this ontology. Firstly, any statement referring to "the organisation" or "management", as entities, is a shorthand reference to a collection of interdependent processes that construct these entities. This assumption is becoming increasingly common in organisational studies (*eg* Wilpert 1995; Rousseau 1997; Fineman and Hoskings 1990). Secondly, it implies that these socially constructed realities may vary or conflict between individuals and may change over time (Guba and Lincoln 1994). Thirdly, separating parts of the process from other parts is a difficult notion. Since reality is socially constructed, removing a phenomenon from its context may change these processes.

Epistemology

Epistemological assumptions define the nature of knowledge (Guba and Lincoln 1994; Morgan 1986). Consistent with the ontological stance, knowledge is assumed to be created by the research process. The interaction between the researcher and the researched, mediated by ontological assumptions, produces knowledge (*see* Kuhn 1970). This raises the twin issues of objectivity and subjectivity. Deetz (1996) argues that this is not a helpful distinction to make. Distinctions between subjectivity and objectivity are "simply not very interesting ways to of thinking about research program differences" (Deetz 1996: 194). He argues that a subject-object distinction: (1) is, in itself, a social construction; (2) provides a rationale and supports the continued dominance of neo-positivist philosophies; and (3) fuels unnecessary conflicts between qualitative and quantitative research.

As with ontology, the epistemological stance carries a number of implications. It suggests that research is an effort to produce reconstructions and consensus – intersubjective knowledge – rather than objective knowledge (Guba and Lincoln 1994). Knowledge accumulates in the form of more informed and sophisticated reconstructions. Secondly, it implies that the quality of research should be judged on its trustworthiness and authenticity (Guba and Lincoln 1994). Thirdly, it implies the influence of context, history and values on the research process. All of these factors are assumed to effect all forms of research and should be dealt with rather than ignored.

Methodology

Methodological assumptions define and describe the processes by which investigations are conducted (Morgan 1986; Guba and Lincoln 1994). It is the way in which the investigator answers the questions or solves the puzzles implied by the ontological and epistemological stances (Morgan 1986). It has been stated that investigations involve interactions between the investigator and respondents. The methodology must therefore accommodate this interaction rather than trying to suppress or avoid it.

There are two implications from the methodological assumptions for this thesis. Firstly, the investigator cannot produce global knowledge; all knowledge is situated and contextual. Therefore, the problems to be solved within these assumptions are local and particular to the context. This means that the aim of this thesis is to understand an empirical situation. The second implication refers to the role previous research plays in an investigation. The methodological assumptions in this thesis mean that past studies provide informative ways of understanding and thinking about the current situation. They are tools used to sensitise the researcher rather than provide globally true answers to the research questions. The theory covered in the following section is used to provide ideas for understanding the empirical situation studied in this thesis. It is not used to provide propositions to be tested empirically.

The Type of Research

The previous section described the key assumptions that define the nature of the research. It is now time to talk about the relationship between theory and data. The first section contrasts deductive and inductive research. The second section describes ideographic research.

Inductive and Deductive Research

The first type of research is deductive research. Deductive research begins with a theoretical model, and seeks to establish the adequacy of that model. The most well articulated form of this is hypothetico-deductive research. In this model, the investigator begins with a theory of the phenomena they are investigating. This theory makes particular statements about the phenomena. For example, Dutton and Jackson (1987) provide a series of hypotheses about the relationship between cognitive categorisation of strategic issues and organisational action. Collecting data to confirm or refute tests the truth of these statements.

The second form of research is inductive. Inductive research begins with data, from which the investigator seeks to derive a theoretical framework that explains the data. Grounded theory (Glaser and Strauss 1967) is a well developed form of inductive research. The investigator begins with a phenomenon of interest and gathers data on this phenomenon. This process usually begins with a theoretical naivety – the investigator does not read what others have written about the topic when starting the investigation. As the investigation proceeds, the investigator produces tentative explanations from the data and continues to add more data to support or refute these explanations. As a framework emerges from the data, the investigator reads other writing on the topic and relates that to their explanation. This reading develops theoretical sensitivity, which allows the investigator to relate their investigation to other works.

Both of these approaches have difficulties in their purest forms. Popper (1959) has argued that we cannot prove a hypothesis. If a hypothesis is shown to be false, then it is disproved. If a hypothesis is not shown to be false, then it is accepted. This means that it is sufficient to explain the current data, using the current methods. This does not mean that subsequent data will not disprove it at some other time. Using this modified logic of falsification, the hypothetico-deductive model continues to work. The results are something approaching truth.

The inductive model does not seem to exist in its pure form. Despite an investigator's best intentions, past experience – including their academic training and philosophical assumptions – all contribute to the way the investigation is conducted (Kuhn 1970; Yin 1994; Watson 1994b). Preconceptions, expectations, and values are all imposed on the data by the investigator (Guba and Lincoln 1985). In a modified inductive model, these factors are all incorporated into the investigation. A theory still emerges from the data, however existing theory informs the investigation at all stages. Instead of always producing a new theory, inductive research may also use or modify existing theories.

These two approaches are extremes on a continuum. It is rare that either approach is used in its pure form. While hypotheses often are tested, unusual patterns in the data give rise to new theories from this type of investigation. Exploratory or inductive research is conducted, but it is often guided to a considerable degree by pre-existing theory. Often an inductive study confirms or refutes an existing model rather than producing a completely new one.

This investigation is somewhere between these extremes. It is not a deductive study in that the theory covered in the following was not used to provide any testable propositions regarding cognition and management. There is, however, a vast body of literature reviewed. This literature is intended to provide a frame of reference for the investigation and to provide some ideas that will explain aspects of the data collected.

Ideographic Research

The research approach taken here is ideographic. This means that each investigation is unique (Butler 1997; Numagami 1998). The investigation draws upon the context and history of the situation to analyse it (Butler 1997; Watson 1994b). Numagami (1998: 5) argues that, because of the ability of people to reflect on "their own thinking and that of others" this type of research is unavoidable in organisational settings. Any 'invariant laws' about organisational phenomena are incorporated into the social actor's thinking about the phenomena, leading them, in many situations, to act differently than these laws predict. A large number of organisational phenomena are not describable as invariant laws, because we change our behaviour when we understand the laws that govern it (Numagami 1998; Giddens 1984).

Idiographic research put great demands on the methodology. There is little or no "homogonous code of procedures" by which a case study can demonstrate its "correctness" (Butler 1997: 938). Instead the writer puts a lot of effort "into explaining, justifying and persuading audiences as to the validity of what has been done" (Butler 1997: 938). The methods, the selection of cases, the analysis, the discussion, and even the research questions are all flexible, being changed and refined as the investigation proceeds (Butler 1997).

Qualitative Research

The research questions, the key assumptions, and the nature of this research all suggest the use qualitative methods in this thesis. The research question is general and not defined in terms of clear hypotheses. The key concepts that are to be explored are not easy to measure, if they can be measured at all. The key assumptions recognise that all forms of research are interactive constructions. The research is ideographic in that the research approach is dynamic, responding to the nature of the data collected.

Combined these factors fit with the characteristics of qualitative research (Denzin and Lincoln 1994; Maykut and Morehouse 1994; Van Maanen 1979; 1982). Denzin and Lincoln state that qualitative research comes in many different varieties or moments. They do offer a generic definition that covers their view of these moments:

> Qualitative research is multimethod in focus, involving an interpretive, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. ... qualitative researchers deploy a wide range of different methods, hoping always to get a better fix on the subject matter at hand (Denzin and Lincoln 1994: 2; *see also* Van Maanen 1979).

Conclusion

The purpose of this chapter was to introduce the research approach adopted in this research. It reviewed the research question. The previous chapters indicated that both management and cognition were each more than large enough to be a thesis alone. Therefore, the issues were prioritised, with the principle emphasis being placed on management. From there, the nature of the research was described. This included describing the key assumptions, the type of research, and qualitative research.

The purpose of this section was to introduce some topics that are important to answer the research question. The next section takes these issues and explores them in more detail from the management literature. The next section seeks to refine this question and see what answers have already been given to it.

Section Two

Theory

The previous section began with the research question, "How does the manager's cognition effect their performance?" The remainder of that section reviewed some background issues to help to answer that question. With that out of the way, it is time to begin the research itself. It begins at the theoretical level.

This review of the theory relating to managerial cognition and performance serves two purposes. Firstly, it takes the original research question and refines it. Secondly, it will introduce a series of intellectual tools – models and theories – that are helpful in understanding and answering the research question.

Before describing the chapters that make up this section, there are two important points to make. The first point relates to the theory used in this section. Theory is considered to be a part of the research. It is not simply a matter of providing an overview of the available literature on managerial cognition and performance. Instead, it is a critical discussion involving gathering information, interpreting that information and deciding how to present it. It is in this light that the theory should be considered – as a critical part of the research process.

The second point is that the definition of cognition provided in Section One is refined in this section (see page 26). Each refinement takes that definition and pushes it in a different direction. These different definitions are important, as they lead to quite different ways of thinking about the relationship between cognition and performance.

With these points made, it is time to move onto Chapter Five, and a summary of the remainder of this section.

Chapter Five

Cognition in Management and Organisations

Figure 5.1 maps the outline for this section. It begins with the research question introduced at the end of Section One. As this diagram shows, the main issues focused on are the two concepts in that question: cognition and performance. This chapter will introduce two ways of understanding cognition, which represent distinctively different approaches to cognition and management.

The first way of understanding cognition, is discussed in Chapter Six, "Cognition Causes Behaviour", implies cognition is a variable that can be considered without reference to the context that the cognition is being applied to. In this chapter, ideas for understanding and modelling cognition in terms of cognitive structures are introduced. This chapter does not address the issues of the organisation or management. Many of the ideas to be used here are drawn from cognitive psychology, which, in turn, drew them from the various contributory disciplines that make up cognitive science.

The second way of understanding cognition is to see cognition as an inseparable part of its context. This view is discussed in Chapter Seven, "Cognition and the Organisation." Here the ways in which the organisation and management are conceived are critically important. The first part of the chapter presents the views of management and the organisation adopted here. Central to each of the models presented is the cognition of the actors involved.

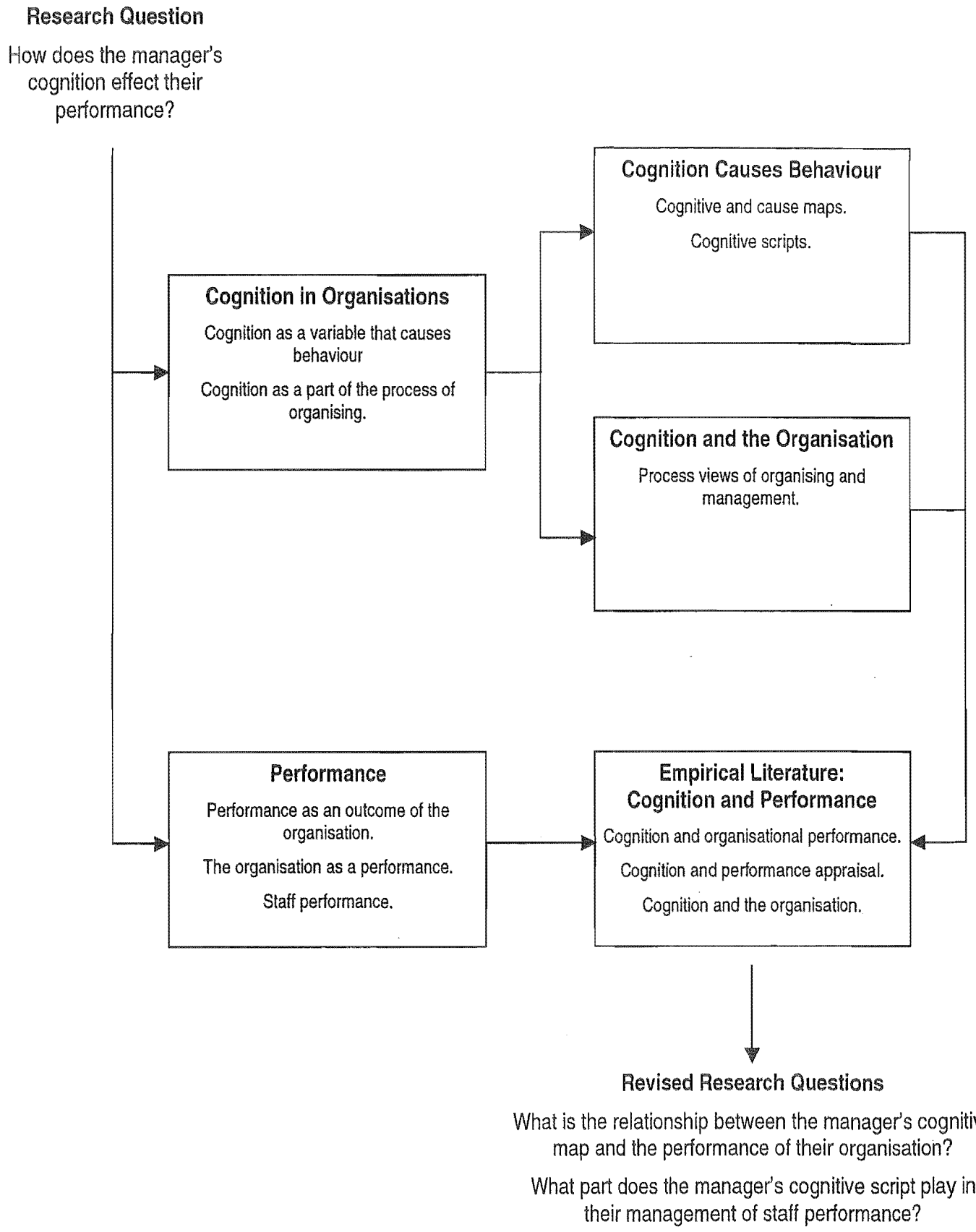

Figure 5.1 A Map of this Chapter.

Chapter Eight explores the issue of performance. This chapter begins by discussing managerial and organisational performance. It then introduces the three ways of treating performance in an organisational context: performance as an outcome (the performance of the organisation); performance as a dramaturgical view of the organisation (the organisation is a performance); or performance as the behaviour of individuals in the organisation (staff performance).

In the light of this preceding work, Chapter Nine looks at the literature that has explored cognition in the domain of performance. All three ways of conceiving performance from Chapter Eight are represented in this empirical literature. In Chapter Ten, the information presented in this review is used to refine the research question. The most important point here is the division of the research question into two questions, each representing a different way of understanding cognition and performance.

Managerial and Organisational Cognition

This thesis is about cognition as a way of understanding management. Managerial performance is assumed to be influenced by the manager's cognition. Stewart (1989) points clearly to the lack of literature addressing managerial thinking. There is, however, a reasonably large literature dealing with cognition in organisations. This literature is the starting point for this review.

Cognition was defined in the preceding section as the process by which the mind acquires, processes, organises, and uses knowledge and experience (*see* Chapter Three, page 26). This definition is deliberately broad – reflecting both that cognition is an idea that incorporates a huge array of different themes and that there is little consensus in any discipline about what cognition is. This diversity suggests that we should begin by looking at what cognition has meant in previous studies of management and cognition.

The managerial and organisational cognition literature is a good place to start. This literature is, however, large. To focus this discussion, the three reviews of managerial and organisational cognition, cited in Chapter Three will be used as a starting point. These reviews cover the majority of the literature on managerial and organisational cognition.

One interesting point about these reviews is that none of them actually define cognition. Lord and Maher (1991: 3) define cognitive science in terms of its goal: "to develop a theoretical system to explain how people function." They continue to explain that this theoretical system "describes a model used to explain how information processing works" (Lord and Maher 1991: 3). Schneider and Angelmar (1993: 348) describe the field of managerial and organisation cognition in terms of the fact that managers, as people, think while engaged in organisational tasks. Walsh (1995: 280-281) explains managerial cognition in terms of information processing. Managers confront "information worlds" that "are extremely complex, ambiguous and munificent" (Walsh 1995: 280). The information that is processed is used to "make decisions and solve problems" (Walsh 1995: 280). All three reviews move very quickly to the notion of cognitive structures possessed by members of the organisation. These structures influence the members thinking and acting in the organisation (Lord and Maher 1991; Schneider and Angelmar 1993; Walsh 1995).

These definitions, while typically ambiguous, provide a useful starting point. They all imply that cognition can be defined in terms of thinking (*see* page 26) – information processing – while engaged in organisational or managerial activities – decision making and problem solving. They all emphasise cognitive structures in organising their review of the literature. They all discuss the relationship between cognition and the organisation in some depth.

The Relationship between Cognition and the Organisation

There are two ways of understanding the relationship between cognition and the organisation. The first is that cognition causes behaviour. The second is that cognition is an inseparable part of the organising process. These views are both present in the managerial and organisational cognition literature.

Cognition Causes Behaviour

The logic that underpins the vast majority of studies of organisational cognition is that cognition influences individual behaviour which, in turn, influences the organisation's behaviour. Lord and Maher (1991) describe the aim of cognitive science in terms of predicting behaviour. Walsh (1995) makes this point clear the organising framework for his review. This framework, shown in Figure 5.2, has the knowledge structure representing the information environment. The origin of the knowledge structure is one issue that is studied. The knowledge structure then has a causal influence over consequences when the information is used. Schneider and Angelmar (1993) reveal the same idea in their suggestions for future research. They call for, among other things, research investigating the link between cognition and performance (Schneider and Angelmar 1993: 364-365). This logic, that cognition influences certain aspects of organisational behaviour, creates an implied causal relationship. Fiol and Huff (1992: 275), focusing on cognitive maps, claim that a "major premise of current research is that the direct cognitive level mental maps ...can be translated into a consistent set of behavior-level functions relevant to decision-making and action".

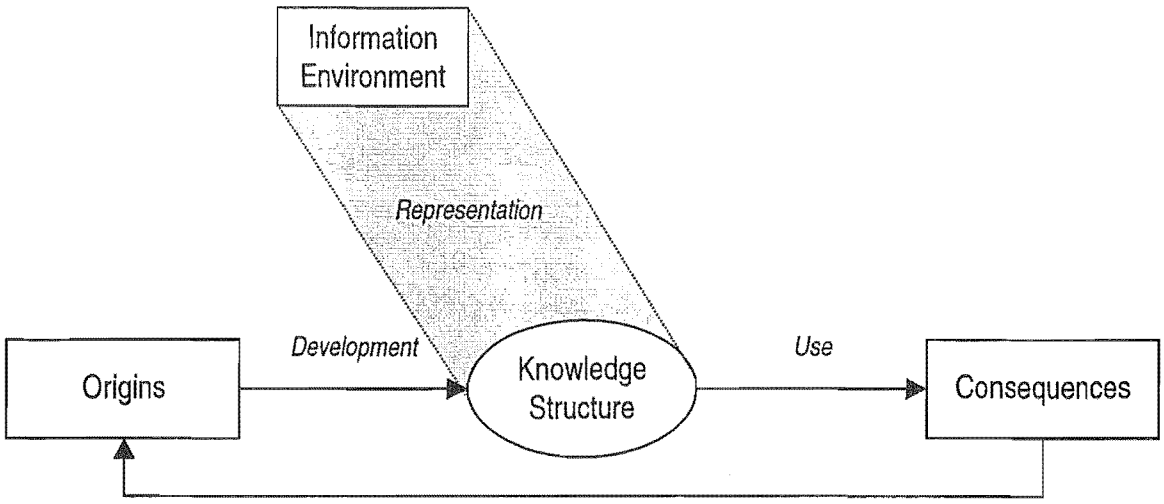

Figure 5.2 Walsh's (1995) Organising Framework

Cognition and the Organisation

A second logic running through this literature is to look at the cognition of individuals as a part of the process of organising. A large number of writers have made forays into this way of thinking. Probably the most consistent in this field is Weick (*eg* 1979a; 1979b; 1983; 1993a; 1995a; Weick and Bougon 1986; Weick and Roberts 1993). Weick defined organisations as bodies of thoughts and sets of thinking practices (1979b) or cognitive maps (1979b; Weick and Bougon 1986). Where the previously described logic implied that cognition was, in some way, separable from the organisation, Weick argues that it is the organisation (1995a). Where the previous logic claimed a causal influence from cognition to the organisation, Weick (1983; 1995a) emphasises the mutual influence between action and thought.

This distinction is not claiming that these two views are completely separate. In Weick's (1995a) writing, the effects of cognition on action are important to the role of cognition in the organising process. Similarly, Walsh (1995) includes a feedback loop from the consequences of cognition to subsequent cognitive structures creating a model that is, to some extent, dynamic. These two views represent different emphases on certain aspects of the nature of cognition in and around organisations.

Discussion

This distinction indicates two different ways that cognition has been conceived in the managerial and organisational literature. These two definitions also represent my own development in understanding cognition. The first, covered in the next chapter "Cognition Causes Behaviour," treats cognition as a variable related to but separate from its context. As such, cognition is treated as an entity in isolation from the application of this knowledge about cognition. This represents my initial understanding of cognition. The level at which cognition will be discussed is extremely detailed, drawing heavily from cognitive psychology, social psychology and artificial intelligence literatures.

The second way of understanding cognition is discussed in Chapter Seven, "Cognition and the Organisation." This way of understanding cognition is richly attuned to the context within which cognition exists. Chapter Seven begins by defining 'organisation' and 'management' as processes. These definitions include cognition as an inseparable part of the organising processes and management as a construction of these processes. From there, Chapter Seven models how the manager's cognition effects the organisation. This discussion draws upon process models of management and the organisation.

Chapter Six

Cognition Causes Behaviour

The question that guides this thesis is, "How does the manager's cognition effect their performance?" In this section, theoretical ideas that help to refine and frame an answer to this question are reviewed. In this chapter, this question will be refined following the first of the two ways of thinking about cognition from Chapter Five. It understands cognition as a variable, which exerts causal influence over behaviour.

The idea that cognition exerts a causal influence over behaviour sounds like a common-sense statement. And, to some extent, it is. The idea that there is some influence from cognition to behaviour is not really questioned in this thesis. The questions that are asked are: How much influence is there? What is the nature of this influence? What are the mechanisms through which it operates? All of these questions are geared towards: What specific variations in cognition are associated with high managerial performance?

To answer these questions, it is important to understand how cognition is defined and how it influences behaviour in general, as shown in Figure 6.1. The purpose of this chapter is to describe cognition as it is discussed in this literature. It begins by discussing definitions of cognition. From there, this chapter discusses the nature of cognition. This introduces the idea of cognitive structures. Two different cognitive structures – maps and scripts – are used to frame the rest of this section.

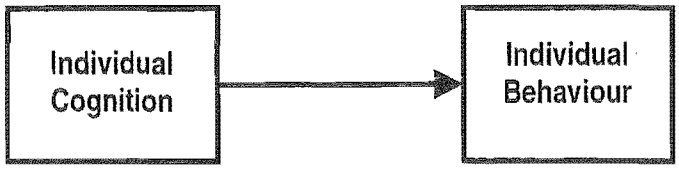

Figure 6.1 Cognition Causes Behaviour

Defining Cognition

From the assumption that thinking of managers is not substantively different from any other persons (Schneider and Angelmar 1993), the answer to how the manager's thinking effects their performance becomes an issue of empirically identifying the specific variations in managerial cognition associated with high managerial performance. To answer this question, it is important to understand cognition. The first step in this understanding is to define cognition.

Approaching cognition from a social psychological perspective, Markus and Zajonc (1985) provide some definitional ideas. Rather than defining cognition, they note that to address a problem in cognitive terms is to consider "how the situation, the stimuli, the variables controlling the responses are represented in the minds of the participants" (Markus and Zajonc 1985: 137). Furthermore, a dynamic view of cognition involves looking at "how social information gleaned from the environment [is] represented and how it [is] processed, stored and retrieved for the purpose of inference attribution, judgement, evaluation, and other forms of cognitive operations" (Markus and Zajonc 1985: 141).

These points capture the meaning of cognition in this psychological view. The twin emphases on representation and processing information are central to cognitive psychology. Also central is the separation of the cognitive entity from that entity's environment. While the environment influences cognition, there is a difference between cognition the environment.

The project of the psychological approach to managerial cognition captured by this definition is reasonably straightforward. Cognition is a variable that influences and is influenced by other variables. Cognition transforms the influence of one variable (*eg* the environment) on another (*eg* behaviour). Markus and Zajonc (1985) model cognition in terms of behavioural psychology's stimulus response model. Instead of the environmental stimulus directly effecting the behavioural response (S → R) they argue that the mind (M) mediates both the stimulus and the response (M → S → M → R). Of A stimulus is perceived and interpreted through cognitive processes. A response is based on the interpreted stimulus, not the direct stimulus. The idea of this sort of approach is to identify (1) the nature of this variable 'cognition' and (2) the relationships between 'cognition' and other variables in the organisational setting.

Combining these ideas leads to a refinement of the model presented at the start of this section. The individual perceives the environment, and their behaviour leads to cognitive outcomes being inferred. This refinement is pictured in Figure 6.2

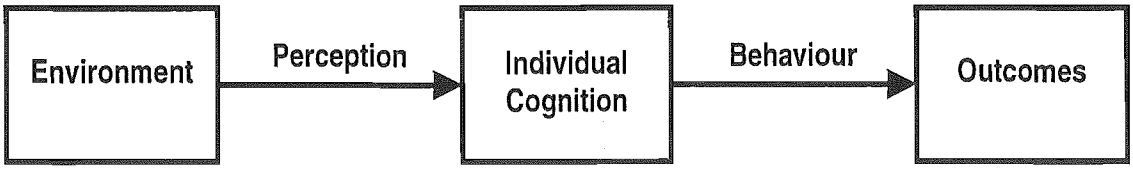

Figure 6.2 Cognition, Perception, and Behaviour

The Nature of Cognition

Markus and Zajonc's (1985) defining statements capture the two main streams of thought on the nature of cognition apparent in this literature: structure and process. Structure is concerned with the representation of knowledge in the mind. It emphasises how information is ordered and organised. Processes refer to the manipulation of knowledge and information to achieve certain outcomes such as judgement, attribution, and decisions.

A cognitive structure is an "organization of conceptually related representations of objects, situations, events, and sequences of events and actions" (Markus and Zajonc 1985: 143). The generic term for cognitive structures is schemata. Other terms for cognitive structures include personal constructs (Kelly 1955), frames (Minsky 1975; Goffman 1974; Shrivastava and Mitroff 1983), theories (Argyris and Schön 1978), paradigms and metaphors (Burrell and Morgan 1979; Morgan 1986), recipes (Spender 1989), and assumptions (Schneider and Shrivastava 1988).

Markus and Zajonc (1985) also draw attention to information processing as an important part of cognitive psychology (*see also* Lord 1985; Lord and Maher 1991). They argue that the information processing metaphor viewed the mind:

> as a computerlike apparatus that registered the incoming information and then subjected it to a variety of transformations before ordering a response. The information transformation, which eventually influenced overt behavior (in ways still to be determined), was seen as an orderly linear process that could be modelled by a flowchart (Markus and Zajonc 1985: 141).

Information processing is usually conceptualised as involving schemata (Lord 1985; Simon 1990; Lord and Maher 1991; Massaro and Cowan 1993). In this 'top down information processing' information is processed using schematic templates that shape the information perceived, the meaning associated with that information, and the responses to the information. As such, while cognitive processes are important, cognitive structures are the primary focus of cognitive research. This generalisation is certainly true of the majority of managerial and organisational cognition (*see* Schneider and Angelmar 1993; Walsh 1995; Lord and Maher 1991).

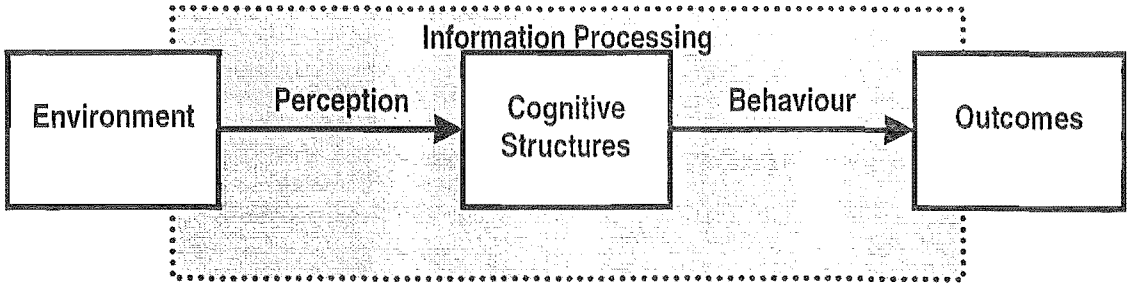

Figure 6.3 Cognitive Structures and Information Processing

Figure 6.3 adds these refinements to the model of cognition. 'Individual cognition' is divided into 'cognitive structures' and 'information processing'. Information processing incorporates elements of the environment and the outcomes. Central to this model, and to cognitive science, are cognitive structures.

Under the broad heading of schemata, or cognitive structures, there are numerous sub-types. Each subtype has particular features and characteristics that make it unique. Each emphasises different aspects of the mind's structuring and processing of knowledge. In this thesis, these cognitive structures are considered as metaphors (*see* Morgan 1986). Rather than accurately representing cognition, each form of cognitive structure emphasises certain aspects of cognition while downplaying other aspects. The two forms of cognitive structure that will be considered here are cognitive maps and scripts. Cognitive maps emphasise concepts and relationships between concepts, while cognitive scripts focus on behaviour appropriate in a particular setting.

Cognitive Maps

The idea of a cognitive map is usually attributed to Tolman (1948) who developed the concept from his studies of rats learning their way around mazes. He argued that these rats developed different types of maps of the mazes. A rat that had learned its way around the maze well developed a comprehensive or cognitive map. These indicated the "routes and paths and environmental relationships, which determined what responses, if any, the animal will finally release" (Tolman 1948: 192). He continued to argue that this idea of maps would also be applicable to human subjects. For Tolman (1948), the cognitive map is an internal representation of an environment that determines behaviour in that environment.

Definition: Cognitive Maps

A map is an abstract representation, usually two dimensional, of a territory (Mouat 1996). The territory is simply the thing being mapped. Most people think of maps as depicting concrete territories, such as cities or mountains; this is most likely to be how the idea of mapping developed (Mouat 1996). Maps have been applied to the stars, to atoms, to brains, to genetics and to just about everything else in human knowledge (Turnbull 1996). Maps are increasingly being used to represent abstract territories such as relationships, culture, knowledge, and cognition (Turnbull 1996; Mouat 1996). Maps are now considered to be a "mode of knowledge assembly" (Turnbull 1996: 54).

The principal advantage of mapping is that it allows us to visualise and manipulate these diverse territories spatially. Spatial reasoning, combined with advances in computer technology, is a powerful way to understand the territory being mapped (Seppi 1996; Turnbull 1996). It also appears that spatial representation is similar to most peoples' ways of understanding knowledge and language (Turnbull 1996).

The notion of mapping cognitive territories is one application of mapping to different aspects of science. The specific application of mapping to cognition has been interpreted in several ways; all maintain the basic idea that a map is a representation of a territory. A cognitive map is either (1) an individual's cognitive representation of their environment (*eg* Tolman 1948); (2) a representation of a situation (*eg* Maruyama 1963); or (3) a representation of an individual's cognition (*eg* Axelrod 1976).

These three meanings of the term 'cognitive map' are included in Weick and Bougon's (1986) review. However, they use a single definition that is common for cognitive maps in organisational settings:

> A cognitive map consists of the concepts and the relations a participant uses to understand organizational situations (Weick and Bougon 1986: 106).

This definition – a cognitive map consisting of concepts and relationships – is consistent with the majority of contemporary applications of cognitive mapping to organisations (*eg* Eden, Jones and Sims 1979, 1983; Bougon *et al* 1977; Roos and Hall 1980; Bougon 1983; Bougon, Baird, Komocar and Ross 1990; Daniels, de Chernatony and Johnson 1995). This definition introduces two ideas that will be discussed in the following subsections. The first is the idea of cognition being represented as concepts and relationships. The second is the idea of understanding and cognition.

Concepts and Relationships

Cognitive maps are different from other forms of cognitive representation in that they focus on relationships between cognitive concepts (Huff 1990; Weick 1979b). According to Weick (1979b), cognitive knowledge consists of two things: concepts and relationships. This basic conceptualisation of cognition involving concepts and relationships is consistent with many ways of understanding cognition (Estes 1991).

Weick (1979b) further argues that the relationships between concepts are the essential component of cognition, rather than the concepts themselves. In making this, claim he was implicating an approach to cognition known as the connectionist model (*see* Varela, Thompson and Rosch 1991; Oden 1987; Estes 1991). In the connectionist model the meaning of a concept is defined by its association with all other concepts, rather than contained within the concept itself. Cognitive maps are a way of both conceptualising (Weick 1979b) and operationalising this model (Bougon 1983).

Weick and Bougon (1986) argue that, at least in organisations, the dominant form of cognitive relationship is causal (*see also* Bougon *et al* 1977; Weick 1979a). They begin this argument by stating that cognition, with respect to organisations, is secondary. The primary construct is action. Cognition effects the organisation by effecting the actions of people in the organisation (*see also* Weick 1995a; Spender 1995; Gioia and Mehra 1995).

From this premise, Weick and Bougon (1986) argue that, at the cognition-action level, causality is the dominant form of cognitive relationship (Weick and Bougon 1986). An individual's beliefs (cognition) about the outcomes (effects) of their actions (cause) influence their actions. Figure 6.4 pictures two causal chains effecting organisational performance. If a manager believes in, or gives primacy to the left-hand chain, then they will act in ways that they believe will improve staff morale. A manager giving greater credence to the right-hand chain would be more likely to act in ways that they believe will reduce costs in their organisation.

The collection of causal chains is a cognitive map, which guides an individual's actions in an organisation. Stated in terms appropriate for the context of this study, the manager's beliefs about how different variables effect one another will influence their actions and, consequently, their performance.

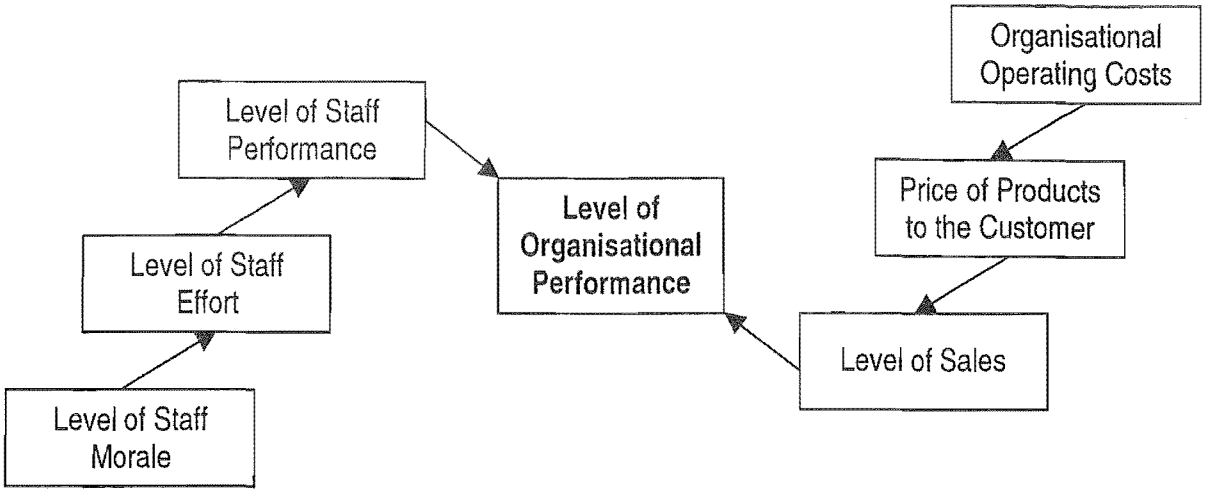

Figure 6.4 Possible Causal Chains Effecting Performance

Cognitive Maps as Representations of Meaning

Weick and Bougon's (1986) definition of cognitive maps draws from Tolman (1948). The original idea of a cognitive map was that it helped an individual (or rat) locate themselves in their environment (the maze) and helped them decide how to act in that environment (Tolman 1948). The cognitive map, as applied to the organisational setting, serves to help the individual 'locate' themselves in their organisation and decide what to do there. This is captured by the idea of 'understanding' (Weick 1979a). In this view, cognition is the process by which we understand and act in our environment. Understanding involves attaching meaning to phenomena (Weick 1979a).

The idea that cognitive maps are able to represent an individual's cognition is one that Scheper and Faber (1994) explored. They adopted a semiotic perspective, which assumes that cognition involves meaning. They asked the question "is it possible for cognitive maps to represent meaning?" They also used Weick and Bougon's (1986) definition of a cognitive map. They concluded that cognitive maps are, despite some difficulties, not fundamentally different from semiotic networks and can therefore represent meaning.

From this argument, Scheper and Faber (1994) concluded that it was at least possible for cognitive maps to represent an individual's cognition. Whether or not a given map did represent this cognition was dependent on the method used to elicit the cognitive map (Scheper and Faber 1994).

Cognitive Maps in Management and Organisation

Cognitive and causal maps have been used for a variety of purposes in the domain of management and organisation. This section will provide an overview of some of the applications of cognitive maps in management and organisation theory.

The first is the use of cognitive maps as a mechanism for explaining the behaviour of organisations (*see* Fiol and Huff 1992). Cognitive maps are seen as a representation of different individual's thinking and used to explain or understand behaviour. Specific examples include: exploring CEO's industry knowledge (Stubbart and Ramaprasad 1988); understanding decisions about technological innovation (Swan 1995, 1997); and relating cognitive maps to attribution theory (Barr, Stimpert and Huff 1992).

A closely related form of cognitive mapping uses the cognitive maps as facilitative devices for interventions into organisations. This stream of work uses cognitive maps as a means of making explicit individual's understanding of a situation. This explicit understanding is then used as the basis for decision making. Different approaches to this facilitation draw on different theoretical bases for their intervention (*eg* Eden 1990; Bougon and Komocar 1990; Grinyer 1991; Hall, Aitchison and Kocay 1994).

Cognitive maps have also been used as specifically comparative devices. These studies have tended to group individuals and then compare the cognitive maps looking for within group similarities and between group differences. Some examples of this form of mapping include comparing: managers of high and low performing small businesses (Laukkanen 1993); managers' and MBAs' thinking (Ford and Hegarty 1984); and managers of different nationalities (Calori, Johnson and Sarnin 1992).

The final use of cognitive maps adopts a quite different theoretical and philosophical basis. Cognitive maps are seen as a basis for collective cognition and behaviour. They are a minimal social structure that is necessary for collective action (Weick and Bougon 1986). By agreeing on the labels used for concepts in individual's cognitive maps interaction between individuals is possible (Bougon 1992). This requires minimal agreement between the individuals, as the meaning applied to these labels may be quite different from one individual to another (Weick 1979a; Bougon 1992).

Cognitive maps are a cognitive structure that has been used in different ways. They have been conceived as an internal representation (*eg* Tolman 1948), a methodological representation of cognition (*eg* Axelrod 1976), and an external representation (*eg* Maruyama 1963). They do not, however, specify behaviour. The cognitive construct that most clearly specifies behaviour is the cognitive script.

Cognitive Scripts

Schank and Abelson (1977) developed cognitive scripts in conjunction with their work on artificial intelligence. Cognitive scripts are the cognitive structure most explicitly linked with behaviour (Gioia and Poole 1984). This makes them a useful cognitive structure in organisational settings. In this section, the concept of the script is introduced, the components of scripts will be discussed and the use of scripts in organisational literature will be reviewed.

The Script Concept

The script draws its metaphor from the theatre. Like the script of a play, the cognitive script "describes appropriate sequences of events in a particular context" (Schank and Abelson 1977: 41). A little more specifically, it is "a predetermined, stereotyped sequence of actions that defines a well-known situation" (Schank and Abelson 1977: 41) or "the stereotypical knowledge structures that people have acquired about common routines" (Mandler 1984: 75).

Scripts are differentiated from other cognitive structures by a concern with sequences of events and the behaviour in certain situations (Lord and Kernan 1987). For example, consider the sequence of events involved in making a telephone call. This may involve 'finding the number,' 'picking up the phone,' 'dialling,' 'greeting the person,' and then following a more specific protocol for the specific nature of the phone call *eg* a call to a friend, an inquiry, or a call to set up a meeting with a business associate. The script prescribes both the caller's behaviour and their expectations of the recipient's behaviour in this setting.

Shank and Abelson (1977: 37) point to the fact that scripts enable short, disjointed interactions that can convey meaning by the shared knowledge of the situation. When moving into a theatre an usher simply needs to say 'second aisle on your right.' Because both people know what constitutes 'normal' behaviour in a theatre, this statement is sufficient to tell me where to find my seat. Stimuli, for the theatre patron the ushers words, are matched against "pre-stored groupings of actions that they have already experienced" (Schank and Abelson 1977: 67). This matching provides an interpretation of the stimuli and an appropriate response to it.

The final point to introduce is the difference between weak and strong scripts (Gioia and Poole 1984). Weak scripts loosely specify the behaviour and the sequence of scenes. Strong scripts clearly specify the behaviour. Gioia and Poole (1984) present these two types of scripts as points on a continuum. Novel or unique events are unscripted; infrequent, ambiguous or relatively new events are weakly scripted; frequent, stable events are strongly scripted. An event with which an individual is (1) very familiar and (2) expected to act in the same way each time is most likely to develop a strong script.

The Components of Scripts

The components of cognitive scripts are scenes, initiating conditions or a script header (Bower, Black and Turner 1979; Gioia, Donnellon and Sims 1989) and roles (Schank and Ableson 1977). Scenes are the components from which the script is built: the sequences of actions. Gioia *et al* (1989) argue that scenes are then divided into vignettes which consist of the most basic observational units in an analysis. For Gioia *at al* (1989) this meant individual speech acts in a linguistic analysis. In addition to the subcomponents that make up the scene, each scene contains its own header. Thus, the overall structure of the cognitive script is hierarchical: vignettes within scenes; scenes within scripts; and scripts embedded within more general scripts.

The script or scene header determines when the script or scene is activated (Schank and Abelson 1977; Abelson 1976; Mandler 1984). It indicates what conditions need to be present for the given stream of activity to be initiated. So a script for how to behave in a theatre is initiated as one walks into the theatre. This script may include scenes such as finding a seat, how to behave when waiting for the show to begin, how to behave when the show ends, and how to leave the theatre. Each scene would have its own initiating events: once you are seated, when the curtain raises, when the curtain lowers, and when the house lights come on.

Scripts also specify roles (Schank and Abelson 1977). Roles may include things such as which actor initiates the different sequences of action in each scene. For example, Gioia *et al* (1989) found that the manager was responsible for initiating the different scenes in the scripts they identified for performance appraisal. These roles provide the template for interpretation of others' actions. The manager interprets the behaviour of the subordinate in a performance appraisal situation in terms of what they believe the subordinate's role should be in this interaction.

Weick (1993a) adds an interesting variation on the idea of roles in cognitive structures. In his analysis of the Mann Gulch disaster, he introduces the idea of a role structure. The role structure means that each person in the situation or group understands the roles that they and others are supposed to play. This understanding does not mean that they can assume the roles of other people. So Gioia *et al*'s (1989) finding that the manager and subordinate appeared to share knowledge of one another's roles does not mean that they could assume the other person's role. The manager's knowledge of the subordinate's role needs to be no more than expectations consistent with the subordinate's actions.

Discussion and Research Questions

Treating cognition as a variable suggests that it is in some sense separable from the context in which it is being studied. At the same time cognition is influenced by and influences this context. A generic research question for this type of research would ask how does cognition effect behaviour? In most cases this is refined to ask what is the relationship between a certain cognitive structure and a certain type of behaviour? A more specific research question specifies both the way cognition will be conceived and the behaviour under consideration.

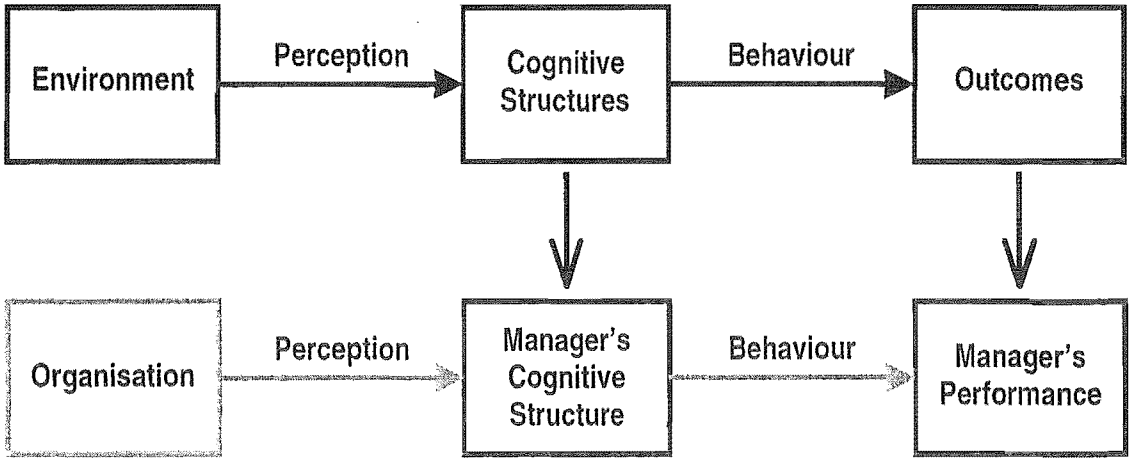

Figure 6.5 Operationalising Cognition Causes Performance

In this case, the behaviour that is being studied is managerial performance. The question asked at the beginning of this thesis can be refined based on the first way of thinking about cognition described in Chapter Five. A causal link is assumed between the manager's cognition – their cognitive structure – and their performance as a manager. This link is modelled in Figure 6.5. This can also be restated as a question, "What is the relationship between the manager's cognitive structure and their managerial performance?"

This question will be operationalised in Chapter Nine, bringing issues from performance and the empirical literature. Before these issues are discussed, it is important to look at the second way of understanding cognition.

Chapter Seven

Cognition and the Organisation

The original question that guides this thesis is, "How does the manager's cognition effect their performance?" The purpose of this section is to review theoretical ideas that help to refine and frame an answer to this question. In Chapter Five, two ways of thinking about cognition were introduced. Chapter Six refined the research question based on the first of these ways of thinking – the idea that cognition causes behaviour. The current chapter explores some implications of the second of these – the idea that cognition is an inseparable part of the organising process. It returns to the original research question and refines it based on this idea.

The most important implication of viewing cognition as a part of organising and managing processes is that it is not possible to understand the manager's cognition without reference to the organisational setting within which this cognition is explored (*eg* Weick 1995a). To adequately discuss management and cognition it is important to place that discussion in the context of the organisation. This placement needs to be done at conceptual and empirical levels. This chapter conceptually places management and cognition in the context of a theory of organising and organisations.

This placement involves introducing an appropriate theory of organisation. Within that theory, the role that management takes is discussed. The next step is to describe the role of cognition in this process. Finally, the implications of the issues discussed in this chapter for the original research question are discussed.

The Process View of Organising

In Chapter Four, it was argued that any study of management is founded upon assumptions defining the nature of reality. In this case, the assumptions refer to the nature of management and organisations. These assumptions guide the conceptualisation of management, the collection and interpretation of the data, and the implications of the findings. The core assumption for this thesis is that the entities we label 'organisations' can be understood primarily as processes (Silverman 1970; Weick 1979a, 1995a; Sandelands and Drazin 1989). One of the issues raised by focusing on processes is that words we use to describe these entities tend to have a reifying effect upon these processes: we treat them as if they were objects (Sandelands and Drazin 1989). Two such words are 'organisation' and 'management' (Weick 1979a; Hosking 1988).

In the process view of organising, the entity that we call the organisation is problematic. Rather than being a fixed entity that influences and is influenced by the behaviour of individuals, the organisation is a reified term for a particular set of interactions between individuals. The organisation is socially constructed by individuals' behaviour.

> In this view, organization develops from interactions of individuals, much in the way that snowflakes or ice crystals develop from interactions of water molecules, or melodies from the interplay of musical notes. Organizational theory, from this standpoint, properly consists of words that describe individual actions and interactions (Sandelands and Drazin 1989: 473).

There have been a large number of efforts to understand what the term 'organisation' refers to. When attempting to operate within the process view of organising, they all make mention of an underlying process similar to the one described by Weick:

> Whenever organizations act – the university gave tenure, the government negotiated, the bakery searched its memory, the orchestra enacted chaos – people act. Any assertion that organizations act can be decomposed into some set of interacts among individuals such that if these people had not generated and meshed a specific set of their actions, and if these actions had not been generated by and meshed among any other people, then the organization would not have performed the act attributed to it (Weick 1979a: 34).

Accepting the idea that 'organisation' is a reification leads to the heart of Weick's (1979a) theory of organising. Weick's (1979a) model of the organising process is not the only one that has been espoused (*see* Sandelands and Drazin 1989 for a critique of Weick's ideas and references to other process theories of organisation). It is the one that gives the greatest importance to cognition. It is therefore appropriate to consider this model in some detail.

Weick (1979a) argues that people engage in double interacts. An interact occurs when a person's behaviour is contingent upon the behaviour of another person. The double interact has three components: an initial action, a reaction, and a response to the reaction. Therefore, when a manager identifies a problem of poor performance with a staff member they act by communicating that there is a problem. The employee then responds by identifying and communicating any reasons for their level of performance. The manager responds by acting to address these reasons. This is one double interact in the process of managing poor performance.

The next part of the organising process is the interlocked cycle. An interlocked cycle exists when an action is a part of two or more double interacts (Weick 1979a). Taking the above example a step further, the manager's actions to remove the obstacles from the staff members performance may lead to a change in the staff member's performance. This change may effect both the manager's subsequent evaluation of the staff member and the staff member's interactions with a customer. An organising process consists of a combination of double interacts that are more or less tightly coupled with one another (Weick 1979a).

The action component of this model explains how the organisation is constructed at any given point in time. What it does not explain is how organisations achieve continuity across time. The answer to this, according to Weick (1979a; Weick and Bougon 1986), lies in cognitive maps. He argues that people can maintain a stable double interact because each person has sufficient cognitive understanding of a situation to act consistently in that situation. This does not mean that the people share an understanding but that their own individual understandings produce the required consistency of action.

This leads to Weick's definition of cognition. This definition is slightly different from the definitions adopted in the previous section (*see pp* 45-46). Weick defines cognitive processes are as "epistemological processes where the mind acquires knowledge about its surroundings (Bougon *et al* 1977)" (1979b: 42). To understand this definition in more detail requires reference to Weick's (1995a) discussions on the nature of meaning and reality. Meaning is of central importance; the process of applying meaning is referred to as interpretation. Interpretation is, to Weick, a cognitive process (*see also* Starbuck and Milliken 1988). Reality is considered to be equivocal: it is capable of supporting more than one interpretation. Knowledge is a form of reality and is therefore also equivocal. Action is thought to reduce equivocality. Action that is based on pre-existing beliefs tends to create evidence to support the belief (Starbuck 1983). The process of acquiring knowledge involves cycles of action and interpretation.

> When managers confront equivocality and try to reduce it, they too often operate on the presumption of logic. They assume that their views of and actions towards the world are valid, they assume that other people in the organisation will see and do the same things, and that it is rare for managers to check these assumptions. Having presumed the environment is orderly and sensible, managers make efforts to impose order, thereby enacting the orderliness that is 'discovered.' The presumption of nonequivocality provides the occasion for managers to see and do those things that transform the environment into something that is unequivocal (Weick 1979a: 160).

This argument provides an explanation for the existence of organisations. For Weick (1979a, 1995a) organisations are enacted. This means that individuals act according to their cognitive structures and create the phenomena that they can interpret as being the organisation. Thus, at the heart of the organisation are cognition and action. An individual acts, experiences the consequences of their actions, interprets this experience and this interpretation influences subsequent actions.

Management and the Process of Organising

In the process view, the organisation is constructed by social processes that Weick (1979a) labels organising. These organising processes also contribute to constructing the processes that we label 'management' (Hosking 1988). Exactly why organisations have managers is problematic since social processes create the functions normally associated with management (Hosking 1988). Therefore, a functional argument for having managers simply moves the problem to a different level: why are those functions necessary?

Leblebici and Salancik (1989) provide one answer. They begin with Weber's (1978) definition of an organisation. They restate this definition as:

> an organization ... consists of a diverse group of participants who may have conflicting interests that must be managed. Organization as a legal-corporate entity exists outside of these participants and represents a bundle of relationships. Whether they are stockholders, creditors, employees, or customers, the participants' relations with one another are mediated by this legal, but fictional entity (Leblebici and Salancik 1989: 322).

Organisations are recognised as interactions, in this case relationships. Within this process, the role of the manager is not to represent any group of participants but to be the agent of the relationships that constitute the organisation (Leblebici and Salancik 1989). Therefore, the manager is not directly responsible to the shareholders, the employees or anyone else. They are primarily responsible to the interactions that constitute the organisation. These interactions, in turn, are expected to serve the interests of the participants in the organisation. They conclude by emphasising that management requires an appropriate institutional context within which to exist: the legal recognition of the organising process. This provides a legal entity to which the manager is answerable.

Hosking (1988) provides a similar definition. She defines management as:

> processes in which influential 'acts of organizing' contribute to the structuring of interactions and relationships, activities and sentiments; processes in which definitions or social order are negotiated, found acceptable, implemented and renegotiated; processes in which interdependencies are organized in ways which, to a greater or lesser degree, promote the values and interests of the social order (Hosking 1988: 147).

Hosking (1988) talks about management as a process rather than the actions of an individual. Management is an activity involving all participants in the organising process. Some of these participants are labelled 'managers'.

Both Leblebici and Salancik (1989) and Hosking (1988) agree that the organising processes socially construct management. In a similar way, Knights and Willmott (1992: 762) describe management as a "practical accomplishment" within an organising process. Watson (1995) showed how a rhetorical process constituted management. This means that management is attributed to the manager by the organisation and, at the same time, the manager is a party to and responsible for the social construction of the organisation. This means that if we are to understand any aspect of management it is necessary to understand the interactive relationship between the manager and the organisation. Integral to this interactive relationship is the manager's cognition.

Cognition, Management, and the Organisation

The idea motivating this section is that cognition cannot be understood without reference to the context within which it exists. More importantly, cognition and context are inseparable from one another. The manager and the organisation mutually influence one another. This mutual influence is what creates both management and the organisation. Cognition is the medium through which this influence operates. Within this worldview, understanding either the manager or the organisation requires an understanding of the other along with an understanding of cognition.

In this chapter, Weick's (1979a) model of organising as a process was presented. In this model, the organisation is constructed by the actions of actors. The consequences of these actions are noticed and interpreted through the actors' cognition (Starbuck and Milliken 1988). Returning to the terms of this thesis, the manager's cognition is, in a sense, the organisation (Weick and Bougon 1986). The organisation exists in the minds of all of the actors involved in it: staff, owners, customers, suppliers, competitors, and every other stakeholder in the organisation. That is how they know how to act in a given situation where they are interacting with the organisation. The knowledge that the organisation exists leads the actors to act in ways that create the organisation.

To understand the manager's cognition in this framework, the sorts of questions to be asked are: What part does the manager's thinking play in the organisation? What part does the organisation play in the manager's thinking? These questions would be considered in terms of the processes and mechanisms describing these interrelationships instead of correlations between 'cognition' and 'organisation' as variables.

Discussion and Research Questions

This thesis is an attempt to answer the question, "How does the manager's cognition effect their performance?" In this chapter, cognition has been viewed as an inseparable part of the processes of organising and managing. To understand the role of cognition in this view, it is necessary to understand the models of organising and managing that are used. The role of cognition in these models is to interpret and influence the manager's actions. These actions then contribute to the social construction of the organisation. Taking all of these ideas together leads to a refinement of the research question. It now asks, "What part does the manager's cognition play in the creation of management?" In this question, the idea of performance is treated quite differently. This, and other topics relating to performance, will be described in more detail in the following chapter.

Chapter Eight

Performance in Organisational Theory

Performance was identified in the original research question as an important concept in this thesis. However, the first three chapters in this section have established two different views of cognition. Each one takes performance to mean something quite different. The purpose of this chapter is to review the concept of performance. The main focus is to establish how performance can be conceived relative to the different definitions of cognition adopted in Chapters Five, Six, and Seven.

The reasons for using performance in this thesis are three-fold. Firstly, performance has been identified as a critical factor missing from our understanding of management and managerial work (Martinko and Gardner 1985; Hales 1986; Stewart 1989; Mintzberg 1994). Secondly, performance is something that is important to managers. Thirdly, performance is a suitably broad concept that it allows the richness and complexity of organisational life to be reflected in it (Cameron and Whetten 1983).

This chapter begins by describing the relationship between managerial and organisation performance. It then describes different meanings that can be adopted by 'performance.' From there, it develops two themes – organisational performance and performance appraisal.

The discussion of organisational performance concludes with two points that cast considerable doubt on the possibility of identifying objective, unambiguous and universal measures of organisational performance. The second part argues that performance cannot be measured as an objective reality because the measurement process constructs it. These arguments raise the question of "Why Measure Organisational Performance?" The third part answers this question.

The second theme considers shifts to the idea of performance appraisal. Where the majority of performance appraisal literature focuses on the mechanisms or processes by which individual performance can be accurately assessed, the two studies cited here take a different approach. They both emphasise the role that performance appraisal plays in the enactment of the organisation and management.

Managerial and Organisation Performance

The first issue to address is the link between managerial and organisational performance. Tsui (1984; 1994) argues that a manager's effectiveness should be evaluated in terms of how well they meet the expectations of their role. Different manager's roles may be conceived in different ways; different groups may have different, possibly conflicting expectations of a managerial role. An effective manager is one who can satisfactorily meet the expectations of the people with whom they work. The manager's role can be conceived in a number of different ways, each of which determines specific expectations against which the manager's effectiveness may be judged.

Hales (1986: 111-112) provided five different ways that managerial effectiveness could be considered:

1. Congruence between actual and expected practices.
2. Fit between the manager's behaviour and activities and their tasks and functions.

3. The manager's effectiveness in ensuring the work of others.
4. The effectiveness of the management team or the organisation's management as a whole.
5. The decision of what constitutes proper functions and tasks of management and the criteria used to assess these.

These five ways of understanding managerial performance demonstrate the fact that managerial performance is, as with other forms of performance, a complicated issue. The only clear thing about these ideas for assessing a managers performance is that it is not clear what a manager's performance is (*see also* Stewart 1989; Mintzberg 1994). The definition of management, from Chapter Two, provides an answer. This definition included the idea that the manager was responsible for the performance of others. This is the third definition of performance provided by Hales (1986).

Meanings of Performance

Performance is a term that carries an enormous array of meanings. Corvellec (1995) reviews some meanings of performance across difference languages. In this, he highlights, among other things, the idea of performance as an outcome (*eg* a profit figure) and performance as a process or enactment (*eg* a play). He argues that this ambiguity is innate in the meaning of performance in organisational settings.

A second way of distinguishing performance in the organisation is the level at which performance is considered. Two levels of analysis are commonly considered. The first is the organisational level. When applied to management, this idea assumes that the manager is responsible for the performance of their organisational unit. As such, their performance is the performance of that unit. The 'performance' of the organisational unit can be consistent with either of the two meanings identified by Corvellec (1995). The second level of analysis is the performance of individual staff. Again, when applied to management, this idea relies on the idea that the manager is responsible for the performance of their staff. This second definition brings the idea of performance appraisal into the forefront of considering managerial work.

Treating performance as the enactment or accomplishment of the organisation is a variation on the idea of treating the organisation as an enactment (Weick 1979a). The organisation is accomplished by the actions of its members. The issue here is not the profit that the organisation makes, but the fact that the organisation exists at all. This brings us back to Watson's (1994a) definition of a manager cited in the previous chapter. He described the manager as being responsible for the "holding together and sustaining of work organisations" (Watson 1994a: 38). This view of performance will be elaborated with reference to empirical studies consistent with this definition of performance.

Themes of Organisational Effectiveness Research

Performance and effectiveness are issues that have persistently sparked the interest of people studying organisations and management. This is illustrated by the series of books and articles on the topic in the late 1970s and early 1980s (*eg* Price 1972; Steers 1975; 1977; Goodman and Pennings 1977; Cameron and Whetten 1983; Venkatraman and Ramanujan 1986; 1987). Reading these sources, the common themes that emerge are:

1. Effectiveness can be conceptualised in a range of different ways. How it is conceptualised determines what is measured as performance.
2. Effectiveness is a complex, multi-dimensional construct.

Conceptualising Effectiveness

Performance and effectiveness provide some sense of how an organisation is going about its day-to-day activities. To do this requires some sense of these activities: what they are and what they should be. The first difficulty in assessing performance and effectiveness is the fact that there is little agreement about what an organisation is or what it should be doing (Cameron and Whetten 1983).

A wide range of discourse exists on differentiating ways of understanding organisations. One of the most widely disseminated is Morgan's (1986) treatise on using different metaphors to understand organisations in different ways. Each metaphor highlights some aspects of an organisation while obscuring others. For example, Weick (1977) proposes that an organisation's performance should be considered in terms of interpretive systems (*see also* Weick and Daft 1983; Daft and Weick 1984). Campbell (1977) contrasts two general models of organisational effectiveness: goal centred and the natural systems view. These represent three very different ways of thinking about what an organisation is (interpretive system, goal seeking entity, an open system) that leads to three different ways of evaluating the effectiveness or performance of an organisation.

The second area considers what an organisation should be doing. For example, Friedman (1970) argues that the only social responsibility of a business is to make a profit for their shareholders. Accepting this view means that the effectiveness of an organisation can be measured by its long-term return on investment. In contrast, Freeman (1984) presents a stakeholder model of the organisation. A business is responsible to different groups of people – employees, suppliers, customers, owners, society in general. The effectiveness of a business is determined by how well it serves these groups; something that tends to be a balancing act of conflicting demands.

The main consequence of these points is that any measure of performance or effectiveness is subjective (Campbell 1977; Cameron and Whetten 1983). To state this a little more precisely, the meaning of any criterion by which performance or effectiveness is judged is derived from comparing this criterion against a standard. These standards are arbitrarily determined by the theoretical or ideological perspective adopted or implied (*see* Campbell 1977: 45-46).

Multi-Dimensionality of Effectiveness and Performance

> To ask a global question about whether an organization is 'effective' or 'ineffective' is virtually useless. Effectiveness is not *one* thing. An organization can be effective or ineffective on a number of different facets that may be relatively independent of one another (Campbell 1977: 18).

Campbell's (1977) paper continues to list 30 different criteria against which effectiveness was evaluated. Empirical studies (*eg* Friedlander and Pickle 1968; Whetten 1978; Miles and Cameron 1982) have shown that:

1. Performance and effectiveness are multi-dimensional constructs.
2. Some criteria conflict with one another: performing well on one dimension may cause lower performance on another.

The conflict identified in these studies exists between different constituencies; it is also conceivable to see trade-offs between measures such as long-term and short-term profitability or between efficiency and survival (*eg* Meyer and Zucker 1989). However an organisation or management is conceived, any measure of effectiveness or performance is likely to be multi-dimensional.

Venkatraman and Ramanujan (1986) embed different levels of effectiveness within one another. At the centre of their conceptualisation is financial performance. Financial performance includes issues such as sales growth, profitability, and stock market returns. The next level, business performance, includes financial performance and adds the notion of operational performance. This level, of the greatest strategic importance, includes measures of market share, product quality, and manufacturing value-added. The third level, organisational effectiveness, includes multiple constituents or stakeholders. This model provides a way of relating organisational effectiveness and performance. Performance, either financial or business, focuses on the organisation's internal operations, while effectiveness looks at the organisation in its wider context (Venkatraman and Ramanujan 1986).

Focusing on the simplest of these levels – financial performance – there is a lack of certainty regarding performance measures. The measures used in an organisation may reflect what has been done in the past (Swieringa and Weick 1987) or current thoughts on best practice (Venkatraman and Ramanujan 1986). From a more critical stance, the notion of 'accounting' as a representation of an objective reality has been shown to contain internal contradictions (Power and Laughlin 1992). Accounting can be more accurately portrayed as a partial representation of the organisation's economic reality of the organisation or an active construction of the organisation's economic reality (Power and Laughlin 1992; Hines 1988). The more critical view presents accounting "as a practice without objectivity" (Power and Laughlin 1992: 116). Even seemingly 'objective' financial performance exhibits the problems associated with organisational effectiveness in general: multi-dimensionality and equivocality.

Venkatraman and Ramanujan's (1986) argument presents performance as a subset of effectiveness. Both performance and effectiveness are difficult to tie to certain, objective criteria. Instead, it seems more likely that they are somewhere between incomplete pictures of an organisation's reality or active constructions of this reality. Construction of performance is possible because the information incorporated into performance is complex and equivocal (Cameron and Whetten 1983). The inherently subjective nature of 'performance' and 'effectiveness' (Campbell 1977) is objectified through the process of measurement (Berger and Luckmann 1966).

Performance Stories

Corvellec (1995: 15) studied performance and claimed that "performance is a tale affixed to an organisation by managerial discourse." In looking at how performance is defined and explained, Corvellec (1995) identifies two basic themes: performance as behaviour and performance as achievement. His critical review of the management performance literature concludes that performance is a feature of the measurement of performance rather than the organisation:

> Most performance texts thus neglect or, at best underestimate the impact of their measurement techniques on what they think themselves to be measuring. The impact, however, is completely decisive: instead of being some organizational trait waiting for measurement, performance is something that depends upon the criteria used for its measurement (Corvellec 1995: 76).

This means that measuring performance creates the performance that it is intended to measure. When studying different accounts of performance, Corvellec (1995) treats performance indicators as a text. He concludes that:

> Acting as selectors, collectors and inscriptors of an organization's activity, performance translates into figures the social relationships that make up the organizational activity. ...

> Far from being true to some objective organizational reality, what performance is most true to is their own history as narrative instances and narrative products (Corvellec 1995: 175-176).

Corvellec (1995) acknowledges constraints on these stories: they need to be consistent with the genre of performance narratives. However, within these constraints there is a wide scope for different stories of performance to be told. The particular performance story told in any organisation reflects the history of its performance narratives and the objectified performance that these narrative construct.

Why Measure Performance?

The difficulties associated with performance measurement may suggest that striving to develop objective measures of performance is a futile task. However, it is obvious that organisations do measure performance and they place a great importance on these measures. This begs the question: "Why measure performance?"

Cameron and Whetten's (1983) conclude that, despite the conceptual and practical difficulties of assessment, it is important for organisations to try to do this. They argue that effectiveness allows managers to accommodate a "wide variety of behaviors, preferences, and performance standards... under the single rubric of effectiveness" (Cameron and Whetten 1983: 268). As such, it allows managers to bring together issues such as environmental damage, staff satisfaction, and profitability together.

A second reason is to initiate action (Swieringa and Weick 1987). By measuring performance, managers gain information that they can respond to. They argue that the objective 'accuracy' of something that initiates action is less important than the fact that it initiates action at all (*see also* Weick 1987a; 1990b). Action then creates order and meaning in the complex and equivocal reality that is the organisation (Weick 1979a; 1995a). Measures of an organisation's performance, regardless of what they are actually measuring, can initiate action and are therefore useful (Swieringa and Weick 1987).

Resource dependency and institutional theories suggest a third reason. Both theories argue that organisations and management need to appear to be legitimate (Pfeffer and Salancik 1978; DiMaggio and Powell 1983). Measuring performance, particularly through accounting measures, may then be a practice that makes the organisation appear to be a valued or legitimate member of its society. This legitimacy makes resources available to the organisation, such as banking and finance.

Another reason to measure performance is to provide some reflection of an organisation's activities or behaviours (Corvellec 1995; Campbell 1977). Campbell (1977) and others of his ilk recognise the practical difficulties of doing this. Cameron and Whetten (1983) argue that performance and effectiveness are necessary, but always partial, reflections of what the organisation is doing. They always reflect some group's preferences while excluding others. These partial reflections, however flawed, are deemed useful to and by managers.

Finally, Corvellec (1995) argues that performance performs a self-referential role in the social processes that constitute an organisation or society. In concluding his study, he refers to the idea of progress:

> Performance stories are practical attempts to prove the capacity of our societies' to operationalise progress. They try to indicate that, despite daily signs to the contrary, we are indeed moving toward progress. Not being simply modernist stories, performance stories are stories that keep the modernist dream afloat (Corvellec 1995: 214).

Performance in Organisations and Performance Appraisal

Performance appraisal is usually written in terms of achieving managerialistic goals. Two exceptions to this are recent works by Townley (1993; 1997) and Quaid (1993).

Job Evaluation and Management

Quaid (1993) argues that job evaluation is an institutionalised myth that is an important part of the social construction of the organisation. Data was collected from a case of formal job evaluation being introduced into a government organisation. From this data, Quaid (1993) found evidence for the three moments of the social construction of reality: externalisation, objectification and internalisation (Berger and Luckmann 1966). Externalisation is the moment in which "conceptions of social reality are given tangible form in rituals, myths, language, symbols and artefacts" (Quaid 1993: 243). Objectification is the moment in which the tangible forms of our concepts are accepted as part of reality and therefore unchangeable (Quaid 1993). Internalisation occurs when the constructed reality is uncritically accepted as being right (Quaid 1993). Quaid (1993: 259) concludes:

> Job evaluation can be interpreted, therefore, as a concrete materialization of implicit assumptions and traditional values hidden amidst a set of charts and graphs. In this sense, job evaluation removes the pay determination process from everyday discourse and places it in the realm of the 'scientific' or the mystical. If provides a verbal explanation and justification for an organizational hierarchy that might otherwise have been difficult to explain.

Performance Appraisal and the Organisation

Townley (1993; 1997) makes a similar argument, claiming that performance appraisal is an essential part of the emergence of management and is linked to institutional processes. This argument is supported by two analyses of the introduction of performance appraisal into UK universities. The first, drawing on Foucault's power/knowledge ideas, identifies ways in which performance appraisal transformed aspects of individuals' behaviour in the organisation into things that were manageable (Townley 1993). The second uses institutional theory to describe responses to the introduction of performance appraisal to the universities. She found:

> ...the construction of the actors involved, their interpretations of the legitimacy of the change and the strategies which resulted from this, rather than the demands of the external environment, were influential in defining their responses (Townley 1997: 274).

These two studies differ from the majority of the performance appraisal literature in that they link the activity of performance appraisal to aspects of the organisation. They place performance appraisal in the context of a theory of the organisation. Rather than focusing on the ability of the performance appraisal process to meet the managerial goals associated with the process, these two studies link performance appraisal to the social construction of the organisation and management.

Conclusions about Performance

Performance is a very broad and complex topic. The introduction to this chapter looked at performance in terms of three different conceptualisations. The first was that performance was an outcome of an organisation's activities. The second was that performance was the enactment or accomplishment of the organisation itself. The third shifted the level of analysis and considered the role of the individual's performance – and performance appraisal – in the organisation.

Treating performance as an organisational level phenomenon was shown to be somewhere between a complex and contradictory phenomenon (Cameron and Whetten 1982) and a socially constructed narrative critical to modernist society (Corvellec 1995). Whichever of these views is accepted, the idea of global measures of performance is rejected. Instead, performance is seen as a phenomenon with local relevance for a given situation. The importance of performance is the role it serves in bringing different ideas together, initiating action, legitimising the organisation, or sustaining the modernist dream.

The idea of performance appraisal was linked to the emergence of management and the social construction of organisations. The fact that an individual's performance can be measured creates the need for the person to measure and monitor this performance – the manager. Performance appraisal is integral to the existence of management and organisations.

The breadth of ideas included under this rubric of performance is indicative of the power of 'performance' in organisational theory. Each treatment of performance here has different implications for the way that it can be associated with cognition. The first is the idea that guided the initial research question: there may be causal links between cognition and performance, treating performance as an outcome. The second draws on the role of cognitive structures in staff assessment and explores how these structures are involved in performance appraisal. The third looks at how cognition is a part of the accomplishment of the organisation, treating performance as part of the narrative process of the organisation. The three divergent views on what cognition is can be brought together under this idea of performance. Treating performance in different ways allows vastly different concepts of 'organisation' and 'management' to be analysed with respect to performance.

In this thesis, performance can be conceived in several different ways. Firstly, an organisation's performance – as an outcome – can be related to the manager's cognition. Secondly, the role of cognition in managing staff performance can be considered. Thirdly, the organisation itself can be seen as a performance – something that is accomplished over and over again. In the next chapter, empirical papers that have pursued each of these views of performance and cognition will be reviewed.

Chapter Nine

Empirical Literature: Cognition and Performance

The first four chapters in this literature review have presented several different ways in which the research question can be approached. This chapter's purpose is to review the empirical studies consistent with each of these conceptions of managerial cognition and performance. The literature reviewed here is a small subset of the empirical work on cognition in organisational settings. What it does represent is the vast majority of the available literature that does address cognition and management in the context of performance.

The notable exception from this review is work associated with categorisation (Rosch 1978). The two most prevalent streams in this literature are Porac *et al*'s (1989) work on cognition and competitive groups and Dutton and Jackson's (1987) work on issue processing. These extended research projects do not, however, address the issue of performance.

This review is structured around the three meanings of performance and the two meanings of cognition already reviewed. The first section adopts a causal view of cognition and treats performance as an outcome. The question asked in these studies is, "How does cognition affect organisational performance?" The second section emphasises performance appraisal, assessing the impact of different cognitive structures on this process. They ask, "What is the role of cognition in performance appraisal?" The final section explores the part that cognition plays in the processes that enact the organisation. These studies ask, "How does cognition help create this organisation?"

Cognition and Organisational Performance

The first way to answer the research question is to take it literally. These studies all attempt to relate some aspect of cognition to the performance of the organisation. Each study adopts a slightly different way of operationalising cognition and performance. In all cases, cognition and performance are treated as variables to be related to one another.

Thomas et al *(1993)*

Thomas, Clark and Gioia (1993) use the sensemaking process as the basis for their understanding of cognition. Their presentation of the sensemaking process divides it into four variables: scanning, interpretation, action and performance. Data regarding scanning and interpretation was gathered from questionnaires from 156 hospital CEOs; action and performance data was gathered from secondary sources. The analysis of this data revealed relationships between each of the four variables. Scanning and interpretation influenced both action and performance.

Jenkins and Johnson

Jenkins and Johnson (1997) relied on causal maps to measure cognition. Their respondents consisted of 30 independent retail store owners. Cognitive maps were produced using a set of preliminary interviews to establish the concepts and face-to-face interviews with the main respondents to produce the cognitive maps. Using growth rates as a performance measure, the businesses were split into two groups: 21 that were growing and nine that were stable or contracting. Their analysis compared structural measures of the cognitive maps between the two groups and found no significant differences. An inductive analysis of the data suggested that there might be differences between these maps. However these differences are not captured in the structure of the cognitive maps and were "far more specific than assumed in the deductive phase" of the analysis (Jenkins and Johnson 1997: S88).

Laukkanen (1993)

The purpose of Laukkanen's (1993; 1994) papers is to develop a method for developing and comparing cognitive maps. Relating these maps to performance is used as an illustrative example of this method. Laukkanen's (1993) study compared high and low performing owner-managers of eight small and medium size enterprises (SME). The limited findings indicate that the high performing managers had both more concepts and relationships than low performing managers did.

Strategy Facilitation

The papers in the final category included here are not empirical investigations of cognition. They are papers that describe the use of cognitive techniques in facilitating strategy in organisations. They are included because they use cognitive mapping to help and organisation in ways that are expected to improve their performance. Eden *et al* (1979, 1983; Eden 1989; 1990; Eden and Simpson 1989) developed a method for cognitive mapping, derived from Axelrod's (1976) methods. This method is used to represent a problem and the representation is used to facilitate discussions and workshops intended to develop solutions to the problem. His approach is typical of many similar techniques that emphasise problem structuring as an intervention tool (*eg* Grinyer 1991; Rosenhead 1989; Ackermann and Belton 1994).

Discussion

Trying to identify common themes amongst these four headings is difficult. The first point to note is that each one takes a different approach to operationalising cognition. Three of the four use a variation of cognitive maps derived from interviews. The fourth uses surveys to elicit cognitive data. Each uses performance measures appropriate to the particular organisations and industries studied.

The findings of these studies are equivocal. Survey data reveals some relationships between different aspects of cognition and performance. Laukkanen (1993) found some differences, but was more concerned with refining the methodology. Jenkins and Johnson (1997) failed to find support for any of their hypotheses and concluded that the differences that did exist are not easily identified. These differences seem to occur at the micro level and are tied to the domain that is being mapped. The conclusions that can be reached from these findings are:

1. There seems to be a relationship between cognition and performance.
2. This relationship is complex and influenced by the context within which it can be observed.

Cognition and Performance Appraisal

There is also a set of studies that look at cognition in the context of performance appraisal. The studies reported here tend to focus on issues of performance appraisal and how different ways of understanding cognition facilitate either understanding performance appraisal or effectiveness of performance appraisal. Cognition is seen as both a variable effecting the manager's behaviour and as a part of the process of performance appraisal.

Gioia, Sims and Donnellon

Gioia and Sims (1986) and Gioia *et al* (1989) provide an interesting combination of methods and paradigms. The first study provided a functionalist account of a series of performance appraisal interviews focusing on attributions made by the managers in these interviews. They found patterns in the attributions made and that these patterns varied depending on whether the subordinate was high or low performing (Gioia and Sims 1986). This was inferred to mean that the managers had cognitive structures that influenced their attributions.

The second study re-analysed the data using interpretive linguistic analysis. Here they found an overall shared structure for the performance appraisal interview. The managers' cognitive scripts are a part of the process of managing performance appraisal. Within this structure, differences between high and low performing staff members were still evident (Gioia *et al* 1989). These results support the idea that managers and subordinates have scripts that guide their behaviour in certain organisational settings such as performance appraisal.

Foti and Lord

Foti and Lord (1987) compared the effect script and prototype models of information processing on managers' ratings of subordinates. The study experimentally manipulated the type of information that the observers were provided with and thus the information processing structure they used. They then compared the observers' ratings of a videotaped scenario with their ideal answers and measured the differences. Overall, they found that the information processing structure used did effect accuracy. Scripts generally lead to more accurate processing of information. The most common error in script processing was the inclusion of behaviours that were consistent with the observer's script but not present in the scenarios observed.

Borman

This study explored the content of cognitive models that army officers used in making work performance judgements (Borman 1987). He used a variation of repertory grid method (Kelly 1955) to elicit the officers' prototypes of high performing workers. Consistent with the personal construct theory underlying repertory grid (Kelly 1955), these prototypes consisted of a set of dimensions upon which high performing workers were differentiated from others. Of the dimensions that were identified, two thirds of them could be related to a set of "six core construct composites" derived from the responses (Borman 1987: 319). This suggests that the ways in which members of an organisation differentiate high and low performing workers are, in some ways, shared.

Discussion

The studies of cognition and performance appraisal differ from the studies of cognition and organisational performance. The data is in all cases gathered under more tightly controlled settings. Foti and Lord (1987) and Gioia and Sims (1986; Gioia *et al* 1989) both used artificial settings to elicit the data. Secondly, they are more concerned with descriptive and explanatory analysis rather than causal findings. They are endeavouring to identify what the constructs that are being used are.

The conclusions from these studies are:

1. Managers have cognitive constructs for helping them in performance appraisal.
2. These cognitive constructs seem to be shared both among managers and between appraiser and appraisee.

Cognition and the Organisation

The final set of studies tended not to use the term 'performance' a great deal. What they use that is being interpreted as performance is the existence and day-to-day operation of the organisation. In these studies, cognition is treated as a part of this organising process. There are two sets of studies reported here. The first set looks at the role of cognition in avoiding organisational failure. The second look at the role of cognition in everyday work and activities.

Cognition in Crisis Situations

Weick (1988; 1990a;1993a), in a series of analyses of crisis situations, placed cognition in a central role. He analysed the Bhopal gas leak (1988), the Tenerife air disaster (1990a), and the Mann Gulch disaster (1993a). In each of these analyses, he identified critical incidents that lead to the disaster. The theme that is common among all of these situations is that the crisis begins with a relatively small problem. The interpretations and actions that follow the problem's occurrence magnify this problem. For Weick, a crisis is a social-psychological event that may involve natural or mechanical elements. However, the critical elements of a crisis are derived from individual interpretations and interactions between individuals.

Mann Gulch describes and incident where a group of US Forest Service Smokejumpers are trapped in a Gulch and all but three are killed. In this incident, Weick (1993a) argues that the fire itself, while bad, should not have led to the deaths of the people fighting it. It did lead to the deaths because of the individual's interpretation of the severity of the fire and their interactions with one another.

Cognition and the Performance of the Organisation

> ...the question of importance to you as a passenger should not be whether a particular pilot is performing well, but whether or not the system that is comprised of the pilots and the technology of the cockpit environment is performing well. It is the performance of that system, not the skills of any individual pilot, that determines whether you live or die. In order to understand the performance of the cockpit as a system we need, of course, to understand the cognitive properties of the individual pilots, but we also need a new, larger, unit of cognitive analysis. This unit of analysis must permit us to describe and explain the cognitive properties of the cockpit system that is composed of the pilots and their informational environment (Hutchins and Klausen 1996: 16-17).

This extended quote from Hutchins and Klausen (1996) introduced their analysis of an airline cockpit as an example of distributed cognition. In an earlier study Hutchins (1995) showed how the navigation of a ship could be considered a cognitive task in terms of the common computational metaphor of cognition. He then showed how, on a navel ship, this task was spread across crew members on the bridge. Hutchins and Klausen (1996) showed the task of flying an aircraft was distributed across the individuals and technology in the cockpit. The cognitive task is performed collectively through a combination of the individual cognitions and interactions. He emphasises the role that physical artefacts (*eg* maps, sextants) played in this system.

A second paper also draws its data from a navel setting. Weick and Roberts (1993) look at the operating of an aircraft carrier flight deck as an example of collective mind (*see* Sandelands and Stablein 1987). For Weick and Roberts (1993) the key construct is heed. When people interact with heed for others in the system, they can achieve a form of collective mind. Once again, collective mind is achieved through individual cognitions and interactions.

These studies, and others like them (*see* Engeström and Middleton 1996), present individual cognition as a part of a distributed cognitive system. This broader system performs the organisation's day-to-day activities.

Discussion

The studies discussed here all place cognition in the context of a social system. Cognition is most usually framed in terms of interpretation or giving meaning (*see* Weick 1995a). As important as the individual's cognition is their action. The interactions between people in a systematic manner serve to combine individual cognition into a collective entity.

Weick's discussions of crisis situations (1988; 1990a; 1993a) show what happens when the individual cognitions and interactions are inappropriate for the situation: small events are magnified to crisis proportions. Weick and Roberts (1993) and Hutchins (1993; Hutchins and Klausen 1996) show the same dynamics occurring in everyday activities. For Weick and Roberts (1993) the setting is an extremely high risk one, however the accident rate is very low. They attribute this to the particular patterns of interactions and cognitions in this setting (Weick and Roberts 1993; *see also* Weick 1987b; Bierly and Spender 1997).

Discussion

The different treatments of cognition and performance incorporate the key ideas covered in this section. In the first set of studies, cognition is treated as a variable that influences organisational performance in terms of outcomes. In the second section, different cognitive structures are seen to have different effects on performance appraisals. Cognition is again treated as a causal variable, although Gioia *et al* (1989) treat it as a part of the process of managing performance appraisal. The third and final section looks at cognition and performance as different faces of the same processes that create the organisation and management – the four variables that were identified as being important for this thesis are inseparable from one another.

The papers reviewed here bring together the ideas presented in this section in several different ways. They highlight the power of different ways of viewing cognition and performance. Each way of viewing these concepts forces a focus on different aspects of the organisation and management. The final job of this section is to discuss the effect the ideas presented have on the research question that is guiding this thesis.

Chapter Ten

Research Questions

The original research question asked, "How does the manager's cognition effect their performance?" The first chapter in the theoretical section introduced two different ways of discussing cognition in the managerial and organisational cognition literature. The first, discussed in Chapter Six, treated cognition as a variable, which caused individual behaviour. The second, in Chapter Seven, considered cognition to be an integral part of the organising process. Chapter Eight took a critical look at performance and outlined at least three different ways in which performance can be conceived. Finally, Chapter Nine reviewed the empirical literature relating to managerial cognition and performance.

The purpose of this final section is to review the research question asked at the beginning of the thesis and revise it, based on the issues covered in this literature review. This is best discussed with respect to the two different views of cognition, introduced in Chapter Five.

Cognition Causes Behaviour

The first view of cognition was that it is a variable that exerts causal influence over behaviour. The review of the cognition literature in Chapter Six lead to the original research question being modified. Cognition was operationalised in terms of cognitive structures. The behaviour that is being studied in this thesis is managerial performance. Together, these ideas lead to the question, "What is the relationship between the manager's cognitive structure and their performance?" This question can be further refined, drawing on issues covered in Chapters Eight and Nine.

The review of the empirical literature shows that, in all cases where a specific cognitive structure was espoused, the cognitive structure used was a cognitive map (Jenkins and Johnson 1997; Laukkanen 1993; Eden 1992). It seems reasonable to use this form of cognitive structure again.

The review of the performance literature suggested that striving to obtain an objective performance measure was extremely difficult or impossible. It seems reasonable, and consistent with other empirical literature (*eg* Thomas *et al* 1993; Jenkins and Johnson 1997), to use performance measures used by the organisation or the industry. In this study, the individual manager's performance will be assumed to be the performance of the organisational unit (branch) for which they are responsible.

These ideas lead to the original research question being modified to ask, "What is the relationship between the manager's cognitive map and the performance of their organisation?"

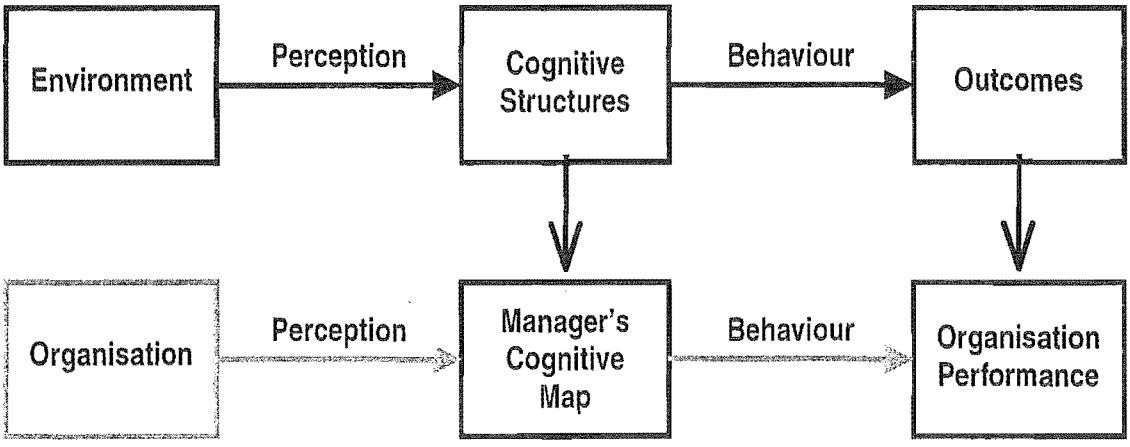

Figure 10.1 Operationalising Cognition Causes Performance

Figure 10.1 shows the relationship of this question to the model of cognition used earlier in this section. This model is copied from Figure 6.5. The only change is to replace the "manager's cognitive structure" with the "manager's cognitive map" and to replace "manager's performance" with "organisation performance".

Cognition and the Organisation

The second way of understanding cognition and management is to view cognition as a part of the process by which both the organisation and management are created or performed. The review of the literature in Chapter Seven emphasised the processes of organising and managing. Cognition is an inseparable part of these processes. Instead of trying to model cognition as influencing an aspect of the organisation, this approach tries to model cognition as a part of the organisation. The original research question can be modified to ask, "What part does the manager's cognition play in the creation of management?"

To answer this question still requires a context within which the manager's cognition can be assessed. Then this cognition can be linked to the organising and managing processes. The empirical studies in Chapter Nine provide a precedent for using performance appraisal as a domain for studying the manager's cognition (Gioia and Sims 1986; Gioia *et al* 1989; Foti and Lord 1987). In Chapter Eight, it was shown that performance appraisal is also a domain within which important parts of the organising process and the creation of management may be observed (Townley 1993; 1997; Quaid 1993).

Using performance appraisal as a domain still leaves the problem of how to operationalise cognition. This is solved by the fact that most of the studies of managerial cognition and performance appraisal use the cognitive script as their operationalisation of cognition. Taking these factors into account leads to a modified research question, "What part does the manager's cognitive script play in their management of staff performance?"

Conclusion

The guiding question for this thesis was stated at the end of the previous section. It is, "How does the manager's cognition effect their performance?" In this section, each of the key variables in that question – management, cognition, and performance – along with one other variable – the organisation – are discussed in some detail.

The issues discussed in this section focus on how the main variables in this thesis can be conceived. Following two different conceptions of cognition and three different conceptions of performance, this review has identified several different ways in which this investigation could proceed. From these different conceptions, the research question can be modified. Two revised questions are used, each one representing a different way of conceiving cognition and performance. These questions are:

> What is the relationship between the manager's cognitive map and the performance of their organisation?
>
> What part does the manager's cognitive script play in their management of staff performance?

The next step in this thesis is to look at how to go about answering these questions.

Section Three

Methodology

This thesis is exploring managerial cognition and performance in a number of different ways. The end of the previous section stated the purpose of this thesis as one of addressing two questions:

> *What is the relationship between the manager's cognitive map and the performance of their organisation?*
>
> *What part does the manager's cognitive script play in their management of staff performance?*

The purpose of this section is to describe the approaches used to answer each of these questions. This is complicated by the fact that these approaches are combined into a single data collection process.

Chapter Eleven describes the main method used to answer the first of these questions. Its purpose is to familiarise the reader with cognitive mapping as a research technique. In this chapter, some methods that have been used for cognitive mapping in the organisational literature are reviewed. From these methods, the method of cognitive mapping to be used in this thesis is described.

The second chapter in this section – Chapter Twelve – describes the interview process. The purpose of this chapter is to identify the key issues for performing good interview research. This chapter defines interviews and explains the nature of the interview. It then describes some techniques for analysing interviews. Finally, it considers the issue of data quality – how to ensure that qualitative data is trustworthy.

Chapter Thirteen describes the research process used in this thesis. This is written in a reflexive style, using a first-person narrative. It uses my experience as a critical part of the research process. In this chapter, I attempt to communicate some of what it was like to do this research.

The final chapter in this section describes the organisation within which the investigation was performed. It describes the organisation in terms of its structure and focuses on issues of change and ownership that the managers claimed were important to them. The managers themselves will be described in terms of how they define their role and some demographic characteristics, relating to their tenure in the organisation and the size of the branches they are managing. The final section will discuss some techniques that the organisation has provided its managers with to manage their staff.

Taken as a whole, this section is intended to prepare the reader for the following empirical section.

Chapter Eleven

Cognitive Mapping

> What is the relationship between the manager's cognitive map and the performance of their organisation?

The purpose of this chapter is to describe the methodological techniques used to address this question. The most obvious methodological issue raised by the question relates to cognitive mapping. This chapter describes methods that have been used for mapping cognition in the organisational and managerial cognition literature. This includes a discussion of the important issue of comparing cognitive maps between individuals. It concludes by identifying the technique that is most suited to this study.

Cognitive Mapping Approaches

In the previous chapter, the idea of the cognitive map as a conceptual tool was introduced (Weick 1979a). The term 'cognitive map' is also in evidence, in the literature, as an empirical device. In this view a cognitive map is:

> a modelling technique which intends to portray ideas, beliefs, values and attitudes and their relationship to one another in a form which is amenable to study and analysis (Eden *et al* 1983: 39).

In this chapter, the idea of the cognitive map as an empirical device is discussed. The chapter begins with a brief history of the empirical use of cognitive maps.

Cognitive Mapping in Management

The emergence of cognitive mapping, as an empirical device, is usually traced to Axelrod's (1976) edited collection of studies. These studies used a variety of specific approaches to produce cognitive maps from a range of different types of data and setting. Most of the techniques involved deriving cognitive maps from documents. Huff, Narapareddy and Fletcher (1990) describe an approach developed from Axelrod's (1976) technique. Both rely on identifying concepts and relationships from secondary or documentary data.

A second cognitive mapping technique was developed by Eden, Jones and Sims (1979, 1983). They took Axelrod's (1976) idea of cognitive mapping and combined it with Kelly's (1955) repertory grid interview method. This technique was developed as a form of problem structuring (*see* Rosenhead 1989) and used as a consulting tool (*see* Chapter Nine).

A third, more disparate group of techniques also relied on interviews and are concerned with the issue of interviewer bias and the academic validity of the maps produced (*eg* Bougon *et al* 1977; Bougon 1983; Ford and Hegarty 1984; Daniels *et al* 1995; Laukkanen 1993; Jenkins 1994). While these techniques use a wide range of different approaches, all employ a multi-stage data collection process, which separates the derivation of the concepts from the derivation of the relationships.

Three broad cognitive mapping approaches are in evidence in the managerial and organisational cognition literature. They are document coding, problem structuring and multi-stage mapping. These approaches can now be described in more detail, including their history, their applications, and their strengths and weaknesses.

Document Coding

Document coding relies on secondary data that are coded using structured techniques, derived from content analysis (Wrightson 1976). As a form of content analysis, this approach identifies the concepts or categories in the data (Erdner and Dunn 1990). As a form of cognitive mapping, relationships between the concepts are also identified. This methodology uses a structured coding scheme applied to the documents being mapped (*eg* Wrightson 1976; Huff *et al* 1990).

This form of cognitive mapping has two significant strengths. The first is that the technique is based on a well established methodology: content analysis (Wrightson 1976; Huff *et al* 1990). This history provides the document coding approach to cognitive mapping with a range of techniques developed to overcome the weaknesses of content analysis. The result is that the maps produced by document coding approaches can be said to have accurately mapped the document.

The second strength lies in the consistency of document coding. By measuring intercoder reliability and making this value as high as possible, high levels of consistency can be achieved. As such, this technique can be seen to be highly reliable. Because of high reliability, variations in the data collected are not due to variations in the coders. They will be due to either variations in the cognition represented in the document or a product of the coding schedule. The validity of the technique lies in the ability of the coding schedule to capture cognition rather than the ability of the coders to capture cognition.

This technique also has two significant weaknesses. The types of documents used include meeting transcripts, company reports, and stockholder announcements. The documents being coded are undoubtedly written for a given audience and context. All forms of inferring cognitive functioning – IQ tests, interviews, verbal protocols and so forth – rely upon a conceptual link that associates the observable behaviours to cognition. There is no theoretical link between written documents and individual cognition (Eden, Ackermann and Tait 1993). Therefore, the relationship between the documents and the cognition of the individual is very tenuous. This was illustrated by Fiol (1995) who found that managers' evaluative statements regarding their organisation's futures are inconsistent with their thinking about these futures.

The second weakness involves the issue of standardisation. To compare two cognitive maps it is necessary to be able to say that a given concept from map A is the same or different from a given concept from map B. However, when two maps include 'sales', do they mean the same thing? Within this approach, the coding of responses ensures a degree of standardisation, and identical phrases should be coded as the same thing. The difficulty is that there is no mechanism for exploring the intersubjective meanings. For example, if two maps include 'sales' there is no way of determining the extent to which they mean the same thing (Despres 1995 makes a similar argument about surveys).

Problem Structuring

The problem structuring approach to producing cognitive maps is driven by a clearly defined purpose. In this case the cognitive maps are used to assist organisations in defining problem situations and developing courses of action (Eden 1989). The cognitive map is a model or facilitative device (often used by consultants), which aims to "arrive at something approaching *consensus* and *commitment* to action" (Eden 1989: 22, *original emphasis*).

This approach begins by identifying and labelling the 'problem'. The label for the problem is the starting point for the entire cognitive mapping interview. The first stage of each interview asks the client to provide what they believe is the best alternative to the problem. This establishes a bi-polar construct (*see* Kelly 1955). From this concept, additional concepts are found by asking questions such as: "Why does this matter to you?" and "Why are you worried about it?" (Eden *et al* 1983: 40). Answers to these questions introduce additional concepts to the cognitive map, linked to the existing concepts. For each concept, Eden *et al* (1983) look for a psychological opposite. A psychological opposite is the alternative to the concept that the client considers. This is usually expressed as '<problem> rather than <solution>'.

Psychological opposites can be illustrated by considering the term 'grass'. Different respondents may provide different contrasts to this term. For example:

- Grass rather than concrete.
- Grass rather than bush.
- Grass rather than carpet.
- Grass rather than the sky.
- Grass rather than a coke.

Each of these opposites implies a different context or definition for the concept 'grass', altering the meaning of the concept. A psychological opposite reduces the ambiguity of a concept by clarifying its definition in the eyes of the respondent.

The next stage of the intervention workshop involves combining the cognitive maps of the clients to produce a collective map. This combination is achieved simply by adding the individual maps together. This combined map is then used as a discussion tool for group workshops. By incorporating the full range of views of the problem, these views are discussed and potential solutions developed. The links, combined in a hierarchical map progressing from constraints to goals, make the map a frame for the problem.

This approach has two key strengths. The first is the theoretical link with Kelly's (1955) personal construct theory and repertory grid method. By drawing on this body of empirical and theoretical knowledge, Eden *et al* (1983) provide an association between the cognitive map and the cognition of the manager (Eden 1992).

The second benefit of this form of cognitive mapping is 'requisite variety' (Eden 1992). Weick (1979a) argues that to represent a phenomena adequately, the mechanism representing it must possess at least as much variety as the phenomena itself. So to represent cognition requires a representation mechanism that is sufficiently rich to capture the variation of cognition. Eden (1992) claims that his cognitive maps possess this variety (*see also* Brown 1992).

Along with the strengths, there are some weaknesses in this approach. The majority of the weaknesses extend from the fact that this methodology was designed for a purpose other than academic enquiry. As such this approach is less concerned with methodological rigour and more concerned with applicability. The cognitive maps produced by Eden (1989) have been shown to serve a beneficial, practical purpose. This does not, however, mean they represent an individual's cognition.

This is most apparent in the limited discussions of the quality of the data collected. While Kelly's (1995) repertory grid method does address the complicated issue of interviewer bias, Eden *et al*'s (1979; 1983) partial adoption of this method limits the power of these approaches. For example, Kelly (1955) prescribes the use of a specific technique: triadic comparisons from which the bi-polar constructs are derived. Eden *et al* (1983) simply ask the clients to provide the psychological opposite. This difference, along with others, suggests that this approach needs to establish its empirical reliability independently of repertory grid method.

The second weakness relates to the issue of comparing two cognitive maps. Eden *et al* (1979) address this issue in a way similar to Huff and Fletcher's (1990) document coding, when producing collective maps. They simply assume that similar terms refer to similar concepts. As with the document coding there is no guarantee as to the real intersubjective meaning of the terms.

The final weakness is the time it takes to produce these maps. Each map requires several hours of interviews and more time outside the interview settings to produce the graphical representation. To produce maps for a large number of respondents can be extremely time consuming.

Multi-Stage Mapping Techniques

Multi-stage mapping techniques are distinguished by the use of multi-stage data gathering approaches and by the separation of concept and relationship elicitation. Three specific data gathering stages are apparent in the literature. These three stages – concept elicitation, relationship elicitation, and map verification – and the studies that employed them are shown in Table 11.1.

While broadly similar in method and purpose, the studies show wide variation in the specific techniques that have been applied. Table 11.1 shows that concept elicitation techniques include a review of theoretical literature (Ford and Hegarty 1984), observation of the organisational setting (Bougon *et al* 1977), visual card sorting (Daniels *et al* 1995) and various interview methods (Jenkins 1994; Bougon 1983; Daniels *et al* 1995; Laukkanen 1993) including "self-questioning" (Bougon's 1983, Bougon *et al* 1990).

Table 11.1 Multi-Stage Methods for Cognitive Map Elicitation

	Concept Elicitation	*Relationship Elicitation*	*Map Verification*
Bougon *et al* (1977)	Naturalistic observation, discussion and interviews (14 variables)	Interviews: each pair of variables is considered.	Ethnographic methodology and hold out sample.
Ford and Hegarty (1984)	Derived variables from current literature on organisational context and structure (8 variables).	Questionnaire: each pair of variables is considered.	
Daniels *et al* (1995)	Visual card sorting technique.		Compared card sort methods to repertory grid. Generally convergent findings.
Bougon (1983); Bougon *et al* (1990)	Respondents question themselves; researcher derives concepts from these self-questions. Most important concepts are selected by the respondent (about 10 variables).	Interviews: each pair of variables is considered.	Minimises researcher intervention, multiple interviews to derive and confirm concepts.
Laukkanen (1994)	Similar to Bougon (1983) but adds a standardisation phase across individuals.	Derives relationships from interviews. Also adds a standardisation phase for relationships.	Maintains database of natural language terms and their subsequent coding and standardisation.
Jenkins (1994)	Preliminary interviews with a representative sample of respondents.	Semi-structured interviews using laddering techniques. Interviews are coded to identify relationships and further concepts.	Multiple coders for each interview, following a coding protocol.

The multi-stage approaches have some distinct advantages. Firstly, they have a sound theoretical base. The most obvious is Weick's (1979b) reference to the connectionist way of understanding cognitive structures. Scheper and Faber (1994) also draw upon linguistic theory to argue that cognitive maps are capable of representing meaning (*see* Chapter Six). Implied in this argument is a link between meaning and cognition, which is consistent with the definitions of cognition in this thesis (*see pp* 26, 45, 62; Markus and Zajonc 1985; Weick 1979b).

The second advantage, and a particular concern with most of these methods, is the issue of comparability across individuals. In particular, Daniels, Johnson and de Chernatony (1994, 1995) and Calori, Johnson and Sarnin (1992) have made efforts to compare individual cognition. Laukkanen (1993) spends considerable time developing a standardised database of the concepts and relationships. Finally, these approaches have some empirical support. For example, Daniels *et al* (1995) compared their card sorting technique to repertory grid methods. They found that the card sorting led to very similar results.

Two weaknesses are apparent in these forms of cognitive mapping. The first is the issue of ensuring the quality of the data. Most of the approaches make efforts to address this weakness by designing non-directive interview techniques (Bougon 1983) and rigorous processes for ensuring validity. For example, Bougon (1983: 183; Bougon *et al* 1990) gets his respondents to ask themselves questions about the topic of interest. These questions are recorded, but not answered by the respondent.

The second weakness is the time involved in this approach, including the commitment of the research participants. For example, Bougon *et al*'s (1977) study required both observation and almost 80 hours of interviews to map an organisational setting involving 19 individuals. All of the approaches requiring multi-phase interviews demand large amounts of the participants' time. The only exception to this was (Ford and Hegarty 1984) who asked their respondents to complete a questionnaire. This approach undermines many of the strengths of this technique (Eden *et al* 1993).

Comparing Cognitive Maps

The questions addressed in this thesis require not only that cognitive maps of individuals be elicited, but that the maps are compared between individuals. Once the maps have been produced by any of the three approaches described above, there are three basic ways of comparing the cognitive maps. These are identifying differences in relationships in the cognitive maps, asking the respondents to compare the maps, and comparing the structural properties of the cognitive maps.

Bougon *et al* (1977) and Ford and Hegarty (1984) achieved comparability by restricting the concepts mapped to a small, standardised set – between eight and seventeen concepts. The resultant maps are easily compared, however the only variation that is possible is in the relationships between concepts. This is consistent with Weick's (1979b) definition of cognition.

Daniels *et al* (1995) used a method of asking the respondents to compare maps of members in the sample. They presented the managers with a set of maps and asked them to rate each map based on the similarity of the map to their views of the competitive environment (*see also* Daniels *et al* 1994a)

There are also techniques that compare the structural properties of cognitive maps. These techniques are derived from Axelrod's (1976) initial treatment of cognitive maps and associating them with mathematical graph theory. These techniques rely upon the mathematical properties of the cognitive maps and allow the analyst to compare the cognitive maps quantitatively. They range from simply counting the number of concepts and relationships to more complex mathematical formulations (Laukkanen 1994; Eden 1992). One of the more sophisticated variations of this technique is Langfield-Smith and Wirth's (1992) and Daniels, Markóczy and de Chernatony's (1994b) derivations of a distance score. A distance score provides a single number that represents the difference between a given pair of maps.

Selecting an Approach

The three broad approaches reviewed above may be best differentiated in terms of their purpose. Document coding was developed to map policy and strategy ideas (Wrightson 1976; Huff and Fletcher 1990). Eden's (1989) problem structuring variation of cognitive mapping was used as a facilitative device for interventions. The multi-stage mapping approaches are intended to assess and compare individuals' cognition. The strengths and weaknesses of each of these approaches reflect these differences. The final thing to do in this chapter is to select the approach that is most appropriate for answering the question, "How does the manager's cognitive map effect their organisation's performance?" From the brief summary in this paragraph, it seems that a multistage mapping technique is the most appropriate for this thesis.

The multi-stage mapping approach was selected for three reasons. Firstly, because it demonstrates a strong theoretical link to individual cognition. Secondly, because it includes mechanisms for validating the resulting maps. Thirdly, because it is the most suited to comparing between individuals.

The weaknesses of multistage techniques also need to be taken into account. The first weakness is the reliance of multi-stage techniques on interviews. In the following chapter, the issues of data quality in interviews will be assessed. This weakness is partially offset by specific techniques for ensuring validity built into multi-stage methods.

The second weakness is the amount of the time involved in producing each cognitive map. This limits the number of respondents that can participate in a multi-stage cognitive mapping study. This is acceptable in this investigation because the emphasis is on understanding managerial cognition and not on statistical generalisation. Removing the need for statistical generalisation removes issues regarding sample size. A small, focused investigation using time intensive methods is well suited to the general purpose of this study.

The final issue relating to the selection of multistage mapping techniques is the issue of comparability between individuals. In comparing the maps, this study adopts the approach taken by Bougon *et al* (1977) and Ford and Hegarty (1984). It is adopted because it allows easier comparison of the maps and is focused on relationships rather than concepts. Since the concepts are held constant, the only variation that can exist between individuals will occur in relationships between the concepts.

The ideas presented in this chapter and the following chapter will be combined in Chapter Thirteen to describe the actual process used to collect and analyse the data in this study. Before that can be done, the techniques used for the second research question need to be considered.

Chapter Twelve

Interviews

What part does the manager's cognition script play in their management of staff performance?

The purpose of this chapter is to describe the methodological techniques used to answer this question. It mirrors the previous chapter, which described cognitive mapping techniques used to answer the first research question. In this chapter the main issue is how to identify the managers' cognitive script. The script can be derived from the managers' accounts of how they manage staff performance. The link between the accounts and the script will be examined in Chapter Sixteen. In this chapter, the focus is on how to elicit the managers' accounts. The main technique used to do this is the interview.

The idea of deriving cognition from accounts has numerous precedents in managerial and organisational cognition. Spender (1989) used an interpretive analysis and placed the manager's cognition at the forefront of the processes of industry development and change. Weick and Roberts (1993) and Hutchins (1995) used observation methods to analyse collective mind on naval ships. Gioia *et al* (1989) used linguistic analysis to derive cognitive scripts from video tapes of simulated appraisal interviews. Weick (1993a) used a non-fiction book as data for an analysis of group sensemaking.

This chapter begins by discussing in some detail the interview, the principal data collection technique used in this study. It then discusses the techniques used to understand and analyse the data. Finally, there is a discussion of the methods used to assure the quality of the data collected.

The Interview

> An interview is literally an *inter view*, an inter-change of views between two persons conversing about a theme of mutual interest (Kvale 1996: 14).

This definition of the interview raises two issues that will be addressed in this discussion of the interview. They are the interview as a conversation and the construction of knowledge in an interview. These issues are concerned with the theoretical role of the interview as a tool for social research. Once they have been discussed, the last issue deals with the mechanics or techniques of 'doing interviews'.

The Interview as a Conversation

> An interview is a conversation that has a structure and purpose (Kvale 1996: 6).

Different authors disagree on the extent to which an interview may be considered a conversation. Most agree that the interview borrows elements that people are familiar with from day-to-day conversation while, at the same time, being different from these conversations (*eg* Kvale 1996; Mishler 1986; Briggs 1986; Spradley 1979; Werner and Schoepfle 1987). Conversations have been an integral part of human knowledge; without conversations, knowledge could not be shared (Kvale 1996). Socratic dialogues are one example of how conversation can be used to develop knowledge.

The interview borrows from day-to-day conversational turn taking and asking and answering questions. Turn taking means that the two people literally take turns at speaking (Werner and Schoepfle 1987; Spradley 1979). One person says something, another person responds. Asking and answering questions means that as one person asks a question, the other person answers it.

Interviews differ from day-to-day conversation in that they have a specific purpose, structure and power relations (Kvale 1996). The purpose of an interview is usually determined in advance; a research interview wishes to discuss a certain topic. The structure of the interview is usually dominated by one way questioning and answering. Finally, there is usually asymmetric power in the interview: the interviewer controls the course of the interview (Mishler 1986).

The Interview as Knowledge Construction

There are a variety of ways in which the interview can be said to construct knowledge, depending on how knowledge is conceived (Kvale 1996; Mishler 1986). Mishler (1986: 52) states that "the discourse of the interview is jointly constructed by the interviewer and respondent." He argues that the interview develops in its own course, influenced by its own "internal history" and "prior exchanges between interviewer and respondent" (Mishler 1986: 52-53).

This idea of discourse developing through the course of the interview is elaborated in more detail (Mishler 1986: 53-54). The traditional idea of an interview is that a question is a stimulus that has a predetermined and shared meaning. Each respondent's response to that stimulus reflects differences between respondents. However the question can also be conceived "as a part of a circular process through which the meaning and that of its answer are created" in the interview (Mishler 1986: 53). Each statement in an interview is given meaning by the discourse that surrounds it.

> 'Good morning!' said Bilbo, and he meant it. The sun was shining, and the grass was very green. But Gandalf looked at him from under long bushy eyebrows that stuck out further than the brim of his shady hat.
>
> 'What do you mean?' he said. 'Do you wish me a good morning, or mean that it is a good morning whether I want it to be or not; or that you feel good this morning; or that it is a morning to be good on?'

'All of them at once,' said Bilbo. 'And a very fine morning for a pipe of tobacco out of doors, into the bargain. ...' (Tolkien 1937 [1981]: 15-16)

In this brief dialogue a statement (good morning) is made; the 'respondent' suggests four interpretations to this statement; finally, all of these interpretations are accepted and a fifth added. This type of exchange occurs frequently in all forms of conversations, including interviews. The meaning of a question or statement is negotiated through dialogue.

The picture of the interview painted here is one where the interviewer and respondent jointly create the discourse – the interview. The link from discourse to knowledge occurs through the interpretive and social construction framework of this thesis (Berger and Luckmann 1966; Kvale 1996). The focus in social construction "on the interpretation and negotiation of the meaning of the social world" (Kvale 1996: 41) means that the interview itself is a site where this negotiation and interpretation occur.

The product of an interview is the joint construction of understanding about a given social phenomenon. The interviewer, as a researcher, can use this construction. The uses include further refinement of the understanding and combining with other constructions (analysis) and combining with other narrative streams, such as a body of theory (discussion).

Doing the Interview

The majority of discussions of interview methodologies, along with most qualitative research, places a great deal of emphasis on 'how to' do that form of research. That is the purpose of the remainder of this section. They focus on the general issues of interview structure and standardisation (Denzin 1970) as well as the logistical issues of arranging the interview, how to act in the interview, and how to analyse the interview.

A qualitative interview is never highly structured (Kvale 1996; Fontana and Frey 1994). Many people warn against excessive structure in an interview (*eg* Kvale 1996; Fontana and Frey 1994; Mishler 1986; Douglas 1985; Spradley 1979). Their reason is that by excessively structuring the interview, the conversational nature of the interview is stilted, reducing the benefits of this type of data collection. A second reason is that the investigator does not know, when beginning the project, how long it will take, how many people need to be interviewed, or even what questions to ask (Glaser and Strauss 1967). The initial stages of an investigation are used to frame the project around a given topic. As this frame develops, and the investigator's understanding of the topic improves, their ability to focus on 'core' issues improves (Glaser and Strauss 1967). Attempting to structure an investigation excessively prevents the investigator from discovering what is going on.

Like day-to-day conversation, in an interview it is common "for interviewees to respond to questions with narratives if they are given some room to speak" (Mishler 1986: 69). The use of an unstructured approach provides the room for the interviewee to respond to a question with a story or narrative. These narratives are a source of meaning.

This unstructured characteristic is part of qualitative research, which has "few standard rules or methodological conventions" (Kvale 1996: 13). Instead qualitative researchers draw ideas from a variety of sources and are combined to reflect the needs of the given situation (Denzin and Lincoln 1994). This variety and lack of codification requires methodological and analytical decisions to be made throughout the course of the investigation, including "on the spot, during the interview" (Kvale 1996: 13).

In this study, the structure of the interviews consists of a list of concepts that will be explored during the course of the interview.

Understanding the Data: Analysis

The term used first in the title to this subsection is 'understanding' the data. While this is a form of data analysis, the priority is given to achieving this understanding rather than to categorising or counting the data. The generic question of understanding is, "What is going on here?" It is answered by applying a series of techniques throughout the progression of the investigation. In this section the techniques for understanding the data in this thesis are discussed and illustrated. These techniques are the interview, coding and categorisation, identifying the narrative, and theorising from the data.

The Interview

The interview is an interactive event. This interaction produces the knowledge that is to be understood. It is therefore important to be mindful of the analysis throughout all stages of the investigation (Kvale 1996). To reserve analysis to a phase after the data is collected leads to a variety of problems. These statements are true of any form of data analysis. A good survey is designed with the analysis that will be performed already in mind. The reasons for this are the same: to ensure that the 'right' data is collected.

Glaser and Strauss's (1967) grounded theory is usually attributed with popularising the idea of analysing during the data collection. Their rationale was that the effort involved in qualitative research meant that it was important to focus on asking important questions. What the important questions were was often revealed by the analysis. Therefore, they argued that each interview should be analysed and built into a theory. The analysis would guide future interview selection (theoretical sampling), the questions asked in future interviews, and the termination of the project (theoretical saturation).

Some key differences between interviews and surveys make consideration of analysis more important in a qualitative interview study. The first point is the lack of predetermined structure. The investigator often begins their investigation with only a vague or loose idea about the phenomena that they are studying. Glaser and Strauss (1967) suggest that an investigation should start with little or no understanding of the phenomena. This 'naivety' means that the researcher begins by asking general questions. The analysing of these early interviews will reveal an appropriate focus for later interviews.

In this study, for example, the issue of how the managers dealt with a staff member performing below standard emerged in early interviews. Based on these responses, each manager was asked, "How do you deal with a staff member that is not performing up to standard?" Their responses form the data analysed in Chapter Sixteen.

The second reason for considering analysis during the interviews is the interactive nature of the interview. The interviewer 'analyses' ideas during the course of the interview. If a respondent mentions an idea that may be consistent with an emerging theoretical category, the interviewer can explore the category with the respondent to test its validity.

For example, one of the categories that emerged in this study was the idea of the "community branch". One branch seemed to have some of the features of a community branch and the manager raised a similar point, so this was explored explicitly in the interview. The idea of the community branch was not included in the subsequent analysis. It was, however, a useful guide to my thinking about the different branches and managers[1].

> *Now, how much of this branch's business is done sort of with the local ... it's a reasonably isolated community here...*

---

[1] This dialogue has been included verbatim. The use of the "..." character is indicates a pause or a change in topic. It is intended to show the way in which ideas emerge during an interview through 'messy' dialogue, rather than in 'clean' statements.

Yeah, a lot of our business is done in town, because nearly half the population drives into town every day. Something like about six thousand bods in and around the hills here. Nearly three thousand of them disappear off into town every day.

OK.

So we're left with the housewives and the elderly.

So a lot of the accounts here, a lot of the business is done...?

Yeah, I guess a town branch, you're in a town branch, then you're primarily doing business for other branches. We would be primarily doing business for our customers. We get a few that have got accounts at other branches, but the majority of the work is done for our customers here.

OK, so most of it's local. This branch is sort of a borderline of ... I've sort of come up with the idea of a 'community' type branch.

It's very similar, I was manager of Blenheim branch for about six years, and I found this to be a similar sort of place. They grow up here, their kids grow up here and they shift house in and around the area. Their kids marry and come and live here, and you can get sometimes two and three, four generations that have never left the area. They like it here, they're...

Sure. Yeah, the small rural branches are the ones that are always community branches.

Yeah, that's right.

This one's definitely...

Yeah, well this branch would be very similar to them...

Yeah, which makes it quite different, I think, to any of the suburban branches.

Exactly, where you've got a lot of people coming in and out of the place. No, it's like a small community. People usually talk about the area with fondness.

Now we did talk about that helps with the staff talking to the... getting to know the customers quite well and that sort of thing. Are there any other benefits to the branch, with it being a community... ?

In this dialogue, the manager and I are exploring the idea of the community branch. It began when I asked about the customer base, a question that I asked of most branch managers. The replies to this question recalled, to me, the idea of a community branch, a tentative category developed to describe the customer-branch relationship. This particular branch had some of the features that I had associated with it, but not others. As soon as I mentioned the term 'community branch', this manager came up with comments very similar to my definition of the community branch. Asking the manager to compare this branch to the rural and suburban branches reinforced this. It then allowed the interview to progress to explore the implications of this type of branch.

Coding and Categorisation

The coding or categorisation phase involves sorting the interviews into a set of descriptive categories (Kvale 1996). These categories provide a way of structuring and comparing the interviews. Coding involves identifying the main themes or ideas present within the data. These general themes can be subcategorised into more detailed ideas as necessary.

In this study, the most basic codes used in the interviews were the concepts introduced to the interview for the cognitive mapping. Each of the thirteen concepts brought into the interview for the cognitive mapping was assigned a separate category. Under each of these concepts were subcategories, as well as additional ideas that emerged during the interview. One code that emerged was 'managing poor performance' where the managers' described their approach and beliefs regarding managing a staff member who was not performing up to standard.

The coding was performed using NUD*IST data package. This package allows the analyst to load the transcript of the interview into the program and then code each line to one or more categories. The software can then find all the text referring to a given category, find all the text that refers to logical combinations of categories (intersections, unions, *etc*). NUD*IST also has the ability to perform word searches and counts. Some people consider NUD*IST to be an analytical package: a qualitative equivalent of SAS or SPSS. In this study, NUD*IST was used as an indexing tool for managing the database. It was not used as an analytical package.

Narrative

A narrative is a story, in this case, a story told by the interviewee. The reason for using a narrative analysis is that "telling stories is one of the significant ways individuals construct and express meaning" (Mishler 1986: 67).

More importantly for this study, van Dijk (1994) develops a model of discourse that includes a schematic level of analysis. This abstracted cognitive level allows us to make sense of the stories contained within the discourse (Graesser, Gernsbacher and Goldman 1994; Martin 1982; van Dijk 1994; Mishler 1986). The stories told by interviewees are structured, in part, by their cognitive structures (Graesser *et al* 1994).

The specific form of narrative analysis used in this thesis was to combine "the many tales told by the different subjects into a richer, more condensed and coherent story than the scattered stories of the separate interviewees" (Kvale 1996: 199). This form of narrative provides access to a socially defined story. The individuals each share this story and have, to varying degrees, enacted it.

Narratives can be derived from the different interviews, describing how the managers do their jobs. A specific example of this technique is shown in chapter Sixteen. In that chapter, each manager's individual descriptions for how they managed a poor performing staff member are combined into a single narrative.

Theorising

There is considerable debate in the literature about what theory is and what distinguishes 'good' from 'not good' theory. Many people favour the idea that theory explains why or how a phenomenon occurs (Sutton and Staw 1995; DiMaggio 1995; Weick 1995b). The final stage of the analysis is to go beyond the references, data, lists of variables, diagrams and hypotheses that are not theory (Sutton and Staw 1995) and attempt to explain what we see. This explanation may draw on some or all of the elements that are not theory, but to them they add a 'why' or 'how'.

The link between research and theory moves in both directions. At all stages of an investigation theory is used to inform and modify the progress of the investigation, it is used as a template against which the investigation may be judged and, ideally, an investigation will contribute to a body of theory.

In the analysis of managing poor performance, the data referring to the process of managing poor performance was reviewed. What stood out in this data was the consistency in the responses that had been observed in the interviews. The idea of a cognitive script was initially used to explain this consistency. The cognitive script concept led to more a clearly structured analysis of the data in terms of different scenes.

Data Quality

The quality of data collected is traditionally assessed by the ideas of generalisability, reliability, and validity (Kvale 1996). Numerous writers have highlighted the difficulties in taking these concepts directly from quantitative research and applying them to qualitative research. These ideas reflect a spirit that is applicable to all forms of research. This spirit asks, "Can I trust this analysis?"

Generalisability is the search for universal laws of human behaviour (Kvale 1996). A general theory applies across all situations (Weick 1979a). Kvale (1996) argues for a wider definition of generalisability. He claims that we generalise:

1. Naturally in everyday actions, by using our tacit knowledge of one situation in another situation.
2. Statistically, by laws of statistical inference from a sample to a population.
3. Analytically, by comparing the similarities between the attributes of two situations. This is similar to both Yin's (1994) inductive generalisation and the use of precedents in law.

Statistical generalisation is usually not applicable to qualitative research, as there is no sense of sample or population. Both natural and analytic generalisation is applicable to this investigation.

Reliability refers to the consistency of the findings (Kvale 1996; Kirk and Miller 1986). A reliable instrument will consistently produce the same results when applied repeatedly to the same phenomenon. This is often interpreted to mean that a repetition of the study would produce the same results. This interpretation of reliability is not appropriate for qualitative research. One assumption of qualitative research is that the situation is contextual and dynamic. Each situation is unique and all change over time.

Validity is the degree to which the observations reflect the phenomena of interest (Pervin 1984; Kvale 1996; Kirk and Miller 1986). The most consistently cited problem with quantitative definitions of validity is the assumption that there is a single 'right' interpretation of any given situation. Validity is then the correspondence between the observations and this 'right' interpretation. However, one of the premises of interpretive research is that any situation will plausibly support more than one interpretation: there is no 'right' interpretation; "the quest for absolute truth is replaced by a conception of defensible knowledge claims" (Kvale 1996: 240).

These problems with generalisability, validity and reliability do not mean that qualitative research is not rigorous. Nor do they mean there is no basis to distinguish good qualitative research from poor research:

> Validation comes to depend on the quality of the craftsmanship during the investigation, continually checking, questioning, and theoretically interpreting the findings (Kvale 1996: 241; *see also* Watson 1994b).

There are ways to ensure the quality of qualitative research. Before these can be discussed, it is necessary to introduce appropriate standards against which the trustworthiness qualitative investigation can be assessed. Once these standards have been established, the remainder of this section discusses the techniques by which the quality of this investigation has been assured.

Criteria for Data Quality in Qualitative Research

M^{c}Cracken (1988) argues that there are a large number of different ways to assess qualitative data. The humanities – subjects such as history, philosophy, and English literature – "are all long practiced in the judgement of interpretive efforts and materials" (M^{c}Cracken 1988: 49). These traditions discriminate between good and bad scholarship; discriminations made "with an enviable fineness" (M^{c}Cracken 1988: 50). He points to the language of these traditions as indicating their way of viewing data:

> This language asks how 'illuminating,' 'encompassing,' and elegant an argument is. When the data are especially complex, contradictory or unclear, the terms 'supple,' 'adroit,' and 'cunning' are also used (M^{c}Cracken 1988).

There are numerous ways of assessing the quality of qualitative research and interviews each of which seems to spawn its own set of terms or redefine the classical validity, reliability and generalisability. Regardless of the terms used, these criteria differ from the classical definitions of validity, reliability and generalisability. For Guba and Lincoln (1985) the quality of an enquiry was its trustworthiness. Trustworthiness includes four dimensions: truth-value, applicability, consistency and neutrality.

Truth-value or credibility refers to the plausibility or believability of the findings to both the participants in the research and the readers of the research (Guba and Lincoln 1985). Do the findings reconstruct the individual's reality adequately?

Applicability or transferability is the use of the findings in other contexts. This concept is similar to generalisability, but recognises the uniqueness of different contexts. Guba and Lincoln (1985: 298) claim that "the burden of proof lies less with the original investigator than with the person seeking to make an application elsewhere." If you wish to apply findings from a different context, it is your responsibility to demonstrate the appropriateness. If you are producing findings, your responsibility is to provide the database from which transferability judgements may be tested (Guba and Lincoln 1985).

Consistency or dependability means the ability of the research to account for the accuracy of the investigation. This includes avoiding errors made by the investigators (such as mis-coding a concept). In this sense, it is similar to the reliability of quantitative data. However, it also accounts for changes in the data due to deliberate changes in the study design or changes in the phenomena itself (Guba and Lincoln 1985).

Neutrality or confirmability refers to the ability of the reader to follow the analysis of the writer (Guba and Lincoln 1985). This, along with dependability, is largely achieved by providing the reader with a clear account of how the analysis was produced.

Ensuring Data Quality

The criteria by which data quality can be judged have been established. It is now important to describe the techniques that were used to maintain data quality. These techniques are the study design itself, analytic induction, triangulation, and data and audit trails.

Study Design and Interviews

Kvale (1996) argues that validity is an important concern at all stages of the interview study. This means that the study should select appropriate methods for the study and that the interviews should continually check the information they produce. The study should be based on sound theoretical presuppositions. The issues of using the interview as an analytical tool have already included the processes of validating the interview during its course. The use of two interviews, using the second interview to confirm the ideas uncovered in the first interview, provides a check for the quality of the data collected.

Analytic Induction

The second technique used to ensure the quality of the data is analytic induction or constant comparison (Denzin 1970; Glaser and Strauss 1967). There are differences between analytic induction and constant comparison, but they share many features. They share the intention of generating theoretical explanations for the variations observed in the data and approach this in similar ways.

Both approaches begin with a naive understanding of the data. For analytic induction it involves "a rough definition of the phenomenon to be explained" (Denzin 1970: 195). For constant comparison, it beings by categorising each incident from the data into categories or codes (Glaser and Strauss 1967).

As data is added, each new datum – for example, each comment from a respondent – is compared against the existing categories or definition. These comparisons can have one of three outcomes. Firstly, the new datum can be added to the existing framework. This occurs when the new datum is seen as an example of one of the existing categories. Secondly, the new datum can be added with some modification to this framework. This occurs when the new datum is seen as a new case, a variation or an extension of a category. Thirdly, the new datum can lead to a new category. This occurs when the new datum cannot be accommodated into the existing framework. Each time the framework or category is modified, it needs to accommodate all the pre-existing categories, as well as the new datum.

The principle difference between analytic induction and constant comparison is the termination of this process. For constant comparison, the process is halted when 'theoretical saturation' is reached. That is, when the analysis stops revealing new categories. At this point, the framework is a "theory that is integrated, consistent, plausible, close to the data" (Glaser and Straus 1967: 183). The theory has not, however, been tested. Analytic induction continues to test its framework against all available data. Thus, the product of analytical induction is a tested theory of the phenomena (Denzin 1970).

Triangulation

The third technique for ensuring data quality is the use of triangulation. This draws on a metaphor from trigonometry where a geometric point can be defined on a plane by referring to two other points. In qualitative research, triangulation involves identifying concepts by referring to different data sources or "the combination of methodologies in the study of the same phenomenon" (Denzin 1970: 291; Jick 1979: 602).

Triangulation usually involves using multiple methods to approach and understand a phenomenon (Denzin 1970). One of the more frequent uses of triangulation is to justify combining quantitative and qualitative methods (*eg* Jick 1979). The idea here is that use of multiple methods overcomes many of the weaknesses associated with using one method on its own.

Denzin (1970) defines triangulation in a much broader sense (Burgess 1984). He identifies four distinct types of triangulation, which vary the data, the methods, the investigator and the theory used in a given analysis. Some of these forms have subtypes. The two forms of triangulation used in this study are theory triangulation and within method triangulation.

Theory triangulation means to use alternative or competing theories in approaching a given phenomenon (Denzin 1970; Burgess 1984). The analyst approaches their research "with multiple perspectives and hypotheses in mind" (Denzin 1970: 303). In this study, this is done by the two distinct conceptualisations of cognition. To gain an understanding of cognition, these different approaches are adopted.

The second form of triangulation is within methods triangulation. This means that the methodology is applied at different points in time (Denzin 1970; Burgess 1984). Each of the respondents is interviewed twice. The second interview's primary purpose is to confirm the data collected in the first interview. This is also adopted within each interview. Where respondent introduces an idea, this idea is tested by various follow-up questions intended to confirm and clarify the idea.

Triangulation assumes that the reference points do not effect the 'point' being located. Silverman (1985) takes issue with the idea of triangulation. He agues that it assumes a single reality. The different data points then provide "multiple mappings of this reality" (Silverman 1985: 105). By comparing these mappings a 'true' picture of the reality is derived. Moreover, any method plays a part in creating the knowledge that it produces. Given these two points, the usual form of triangulation in organisation studies – combining qualitative and quantitative methods (*eg* Jick 1979) – does not work. Each methodology is expected to produce different results.

The benefit of triangulation is that, by adopting multiple perspectives in the study of a phenomenon, the knowledge produced by this study crystallises about it (Kvale 1996; Silverman 1985; Cicourel 1973). While triangulated data is not necessarily more 'objective' or 'valid' than data from a single source, it is does provide a richer picture of the phenomena being studied.

Data and Audit Trails

A qualitative investigation is, by its very nature unstructured. The method develops through the course of the investigation, responding to the discoveries made in the data and the learning of the investigator (Glaser and Strauss 1967; Kvale 1996; Guba and Lincoln 1985). Qualitative investigations cannot follow a predetermined methodology. This is sometimes interpreted as a weakness of the method in terms of the data quality. It is not. What is a weakness is failing to fully report the approach that is used.

The writer of qualitative research is obliged to describe how they achieved their results. This provides a final check for the trustworthiness of the data.

> For the reader who wants to evaluate the trustworthiness of the findings, to reinterpret or apply the results, information on the methodological steps of an investigation is mandatory (Kvale 1996: 255).

Similarly, Watson (1994b: S79) states:

> To judge whether or not the research reports are worthwhile, readers need to know as much as possible about the nature of the researcher's role in creating them.

Guba and Lincoln (1985) suggest that it is possible to have qualitative research audited, using the same principles as auditing financial accounts. Even if this approach is not adopted, the creation of a trail from the data to the conclusions is an essential check on the findings of and investigation.

The key elements that are to be included are the study design, the interview situation, the transcriptions, the analysis and the verification of the results (Kvale 1996; Guba and Lincoln 1985). Each of these elements contributes to the trustworthiness of the findings and should be visible for the reader to assess. In short, the data trail provides a guide to the analysis, describing the process of the investigation.

The study design includes information on the origin of the investigation and the structure of the data collection. The origins include the research proposal, expectations and predictions for the investigation (Guba and Lincoln 1985). The structure of the data collection includes how the respondents were identified, how the number of respondents was decided, and the background on the respondents (Kvale 1996). Where the study design changes during the investigation (*eg* Glaser and Strauss 1967), these changes should be described and the reasons for the changes provided.

The interview situation includes describing the structure and the experience of the interview. The structure includes the prior information given to respondents, the interview guide or questions, the origins of these questions, and the ordering of these questions (Kvale 1996). The interview experience may provide notes on the interview experience, the rapport established and the physical, social and emotional setting of the interviews (Kvale 1996; Guba and Lincoln 1985).

The transcript includes the details of how the transcriptions were performed. This includes the level of detail included in the transcripts and instructions given to transcribers (Kvale 1996). Examples of partial transcripts may be included to illustrate the data used (Guba and Lincoln 1985).

The analysis includes information on steps of the analysis (Kvale 1996). This includes techniques for data reduction such as summaries, notes, and tentative categories; the results of this analysis; the findings; and the final report (Guba and Lincoln 1985). This section should be a detailed discussion, including examples, of the derivation of the findings from the transcripts.

Verification is the final section, which incorporates notes on the methods used to ensure the trustworthiness of the findings (Guba and Lincoln 1985). It should describe the checks included for accuracy at each stage of the investigation (Kvale 1996).

These techniques can be used to assure data quality and are appropriate to this investigation. There are specific notes on how these techniques have been applied in this study. The majority of these notes are scattered throughout this section and the three analytical chapters. Where possible, examples of the categorisations and narratives are included. The next chapter is devoted to describing the research process and the organisation that was the site of the investigation. The research process is described in detail, including the methodological decisions made at each stage and their reasons. The organisation is also covered in detail.

Conclusion

The purpose of this chapter was to describe the methodological techniques used to answer the question, "What part does the manager's cognition script play in their management of staff performance?" The technique described was the interview. It was described so as to provide some tools for doing interview research. This included the nature of the interview, describing methods for performing and analysing interviews, and the tools to ensure that the interview produces good quality data.

This chapter, along with the previous one, has provided the empirical tools used in this thesis. The next chapter describes how these tools were used to perform the empirical research. It shows how the interview and cognitive mapping approaches were combined into a single methodology, and how the quality of the data was ensured. It also describes a number of practical issues associated in performing qualitative research.

Chapter Thirteen

The Research Process

I began this thesis trying to answer the question, "How does the manager's cognition effect their performance?" This question was subsequently revised into two more specific questions. The first asked, "What is the relationship between the manager's cognitive map and the performance of their organisation?" The second asked, "What part does the manager's cognition script play in their management of staff performance?" The previous two chapters described some techniques that could be used to answer each of these questions. In this chapter, I describe the approach that was used in this study.

In this chapter, I have adopted a reflexive style. In doing so, I have used a first person narrative, instead of the usual third person used in the rest of this thesis and the majority of managerial and organisational cognition literature. I have also provided a more revealing description of the pragmatics of performing this type of research.

The reason for this style is to attempt to communicate the experience of performing this research and the mechanics of the research process. This will achieve two things. Firstly, it will help to establish the credibility of the data presented in this thesis. Secondly, it will communicate a more realistic view of qualitative research than seems to be reported in much of the literature.

A Single Research Site

The nature of this research was described in Chapter Four. The key assumptions and my decision to adopt an ideographic, qualitative approach indicates that a small number of sites, explored in some detail are more appropriate than a large number of sites. This would allow me to spend more time understanding the unique characteristic of each case. This understanding would enable me to identify more confidently the critical issues that are occurring in each case. The decision to use a small number of sites leaves a decision between single and multiple sites.

This research looks at the relationship between a manager's cognition and their performance. A single site has the advantages of simplifying issues regarding performance and organisational influences. Comparing performance across different organisations requires that there was some basis for this comparison. My treatment of performance, in Chapter Eight, implied that this would be difficult, if not impossible, to do in a way that was meaningful to the managers in the organisations. A similar issue is at stake for an organisation's influence on the managers. Different organisational influences on their managers may complicate the ability of the investigation to identify issues relating to the managers' themselves. Both of these issues would be complicated further if a comparison needed to be made across industries.

These arguments led me to choose a single site for this research. The principal reason for this is that it seems difficult to find ways of adequately comparing managers across organisations. The ideas guiding this investigation, discussed in Chapter Three, did not provide any clear or definitive ways of achieving this comparison. The comparison between the managers was done largely by the organisation using the organisation's measures of performance. My focus could then be directed exclusively towards the managers' cognition.

Many of the weaknesses associated with single case investigations are based on the assumption of statistical generalisation, which I discuss in Chapter Twelve. To be able to generalise statistically from a portion of the population to the entire population, it needs to be demonstrated that that subset is the same as the population on the dimensions that are being generalised. This is sample representativeness. In qualitative research, statistical generalisation is not a consideration. Instead, the purpose is theoretical generalisation. I need to demonstrate that the ideas presented in my thesis are consistent with a set of theoretical propositions.

With this decision made, I needed to identify a research site to perform the research. Once the site was identified, I needed to gain access to that site. The ease of access was one of the main factors in selecting the site I used.

Initial Contact and Access

The first stage in the research was to gain access to a research site. I selected a large nationwide organisation that operated in the financial services industry. I studied one region of the organisation. The organisation is described in more detail in Chapter Fourteen. The purpose of this section is to describe the process by which I gained access to the research site.

Initial contact was made through the regional manager of the organisation. One of my supervisors had worked with the organisation in the past and arranged for me to meet with the regional manager. In this meeting, the purpose of the study was explained and regional manager provided initial agreement and his support for the investigation. The managers I proposed to study were the branch managers. The chain of command in this organisation flowed from the regional manager, to four area managers, then to the branch managers. Despite the regional manager's support, he required that further approval be sought from the area managers.

The next stage of the investigation was to speak to the four area managers. Again, the study, including its purpose and expected benefits, was explained. In all cases, their agreement was obtained; for three of the four, this agreement seemed to have been given before the interview began. My principal role in meeting with the four area managers seemed to be to inform them about the study rather than to secure their agreement. In each of these five introductory meetings, I also attempted to gain a sense of the organisation that I was entering by discussing with each of the managers the issues they felt were confronting them or the organisation.

This preliminary agreement involved several points. I was given permission to contact the branch managers; I was given a list of contact names and telephone numbers for the branch managers; and the regional manager circulated a memo to the branch managers endorsing the project. In both the interview and this memo, he explicitly stated that none of the results that could identify any manager would be made available to the branch manager's superiors. Finally, the regional manager agreed to provide me with performance data for each branch at a later stage in the investigation. I did not want to see the performance data prior to this point, as I did not want it to bias the interviews.

Questionnaire

The original research question was split into two. The first asked, "What is the relationship between the manager's cognitive map and the performance of their organisation?" The second asked, "What part does the manager's cognition script play in their management of staff performance?" These two questions create two parallel investigations in this research. This, in turn, requires a methodology capable of incorporating both investigations.

The first question relies on cognitive mapping as the primary data source. These maps would be related to the performance of the manager's branch. Following the ideas reviewed in Chapter Four, the cognitive mapping process involves three stages: eliciting the concepts, eliciting the relationships and confirming the maps. To reduce the time required of the managers, I decided to elicit the concepts for these cognitive maps prior to first interviews. The tools used to perform this elicitation were the preliminary meetings with the general manager and the four area managers and a survey. Two sets of factors were necessary. The first set of factors captured performance; the second set of constructs captured the drivers of performance.

My discussions with the senior managers made it clear that the organisation placed a great deal of importance on individual and staff performance. The managers' performance was measured almost exclusively by the financial performance of their branch. In addition to this, there was an espoused belief in the importance of customer satisfaction and staff satisfaction across the organisation as performance indicators. I selected these three areas as the main factors describing the performance of the branch (*see* Table 13.1, *pp* 132).

Identifying the performance outcomes was the first task in identifying the concepts for the cognitive maps. The second task was to identify the factors that each manager believed influenced these performance outcomes. I did this with a questionnaire (*see* Appendix One). The questionnaire asked several questions. The introductory questions were intended to warm the manager up to the main question:

> Bearing the branch performance measures in mind, please list the main factors which influence these results in your branch. For example, you may believe that location is a strong driver of performance in which case you would write 'location' in the 'Factors' column. Include as many or as few factors as you believe are necessary to adequately explain branch performance.

Along with the questionnaire, a covering letting was written by one of my supervisors (*see* Appendix One). This letter introduced me as the researcher. It also used my supervisor as a referee[1]. It described the purpose of the investigation and the process of the research. The covering letter also provided some information to the managers, namely: that the manager's participation was voluntary; that all results would be confidential, specifically that individual results would not be forwarded to either the area or general manager; and provided contact information for myself and my supervisors should they have any concerns.

These questionnaires, along with the covering letter and a return envelope for the questionnaire, were sealed in University envelopes and forwarded to the head office. The head office then circulated these envelopes using their internal mail system. Copies were also sent to the four area managers and the regional manager for their information. The questionnaires were not numbered, so the individual managers could not be identified by their questionnaire responses.

Table 13.1 Concepts for Cognitive Maps

Performance Drivers	Performance Outcomes
1. Having capable and knowledgeable staff	11. Achieving high levels of customer satisfaction
2. High levels of staff morale and motivation	12. Good financial performance of the branch
3. Having the right number of staff	13. Having satisfied employees
4. Having a good location for the branch	
5. Having a favourable customer mix	
6. A well equipped and layed out branch	
7. Managing staff performance well	
8. High levels of competition	
9. Having a good mix of products	
10. Providing leadership to the branch	

[1] My supervisor's past contact with the organisation had earned him considerable respect with the branch managers. The use of his name added credibility to this investigation.

Thirty-five questionnaires were sent out and thirty-two were returned. From the responses to these questionnaires, ten factors, or performance drivers, were identified (*see* Table 13.1). These ten performance drivers along with the three performance areas formed the structure of the subsequent interviews.

The Interviews

The interviews served three purposes, as identified in Chapter Three. They needed to elicit the relationships between the concepts – performance drivers and performance areas – for the cognitive maps. The interviews needed to collect the managers' accounts of their job and their work. Finally, they needed to validate both forms of data by verifying both the cognitive maps and the managers' accounts.

Once the questionnaires were returned the individual managers were contacted by telephone and an interview was arranged. All of the managers agreed to participate in this study. The interviews were spread over a period of approximately three months. I conducted up to three interviews a day, although two was more common. The length of the interviews varied from about 40 minutes to almost two hours[2].

One of the important themes that needs to be described here is the role of the structure in the interviews. My discussion in Chapter Twelve suggested that qualitative research was inherently unstructured. In describing the interviews, this issue will be discussed once again.

The Interview Setting

The interviews were all held in the manager's office. In most cases this involved one of us sitting on either side of a their desk, although some of the managers had a coffee table that was used. The managers themselves were all familiar with an interview type setting – this is part of their role.

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[2] The longest of the interviews was cut short at two hours, as I had a second appointment to get to. Otherwise, it may have gone on longer.

My role in the interview varied. In some interviews the manager was more reserved, so I spent the majority of my time asking questions. In other interviews the manager seemed glad to have a sounding board and was happy to talk about a wide range of issues in some depth. While I was reluctant to steer them excessively, I generally found they would talk about any topic. These managers required me to control the course of the interview by introducing the topics I wanted them to discuss. Others managed the time in the interview themselves, moving from one concept to the next at their own pace. In these interviews my role was to ensure that each concept was discussed in sufficient detail.

My reactions to the interviews varied. I was, as I expected, nervous for the first few interviews. This became less of a concern as the study progressed. I was lucky in two ways. Firstly, the first interview produced some excellent information, and some very 'quotable' quotes. For example, "You plan in pencil, not in pen." The second piece of luck I had was that, while I did have some negative experiences with interviews, these were later in the interview process. When I did encounter difficult respondents, I was comfortable in my role as an interviewer and better able to handle them.

I believe it is impossible for an interviewer to avoid a response to the interviewee. This response is both emotional and intellectual. My responses to the interviewees varied widely including respect, liking, apathy, antipathy, and intimidation. This, I believe, reflects the fact that the managers were all individuals and all different. My responses were similar to meeting the same number of people in any other setting. While these responses are unavoidable, they should be carefully managed so that they do not completely dominate the data. One example of this was a manager who I did not like[3]. Before my second interview with this manager, I spoke to a colleague about this and essentially sought to calm myself down.

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[3] My emotional responses are valid data. I found, some time after the interviews, that this manager elicited a similar response from his staff. He is not a person I would have liked to work for, and most of his staff came to the same conclusion.

Overall, I found the process of interviewing one that was extremely rewarding. It was physically tiring (which I note under the next heading). However it was also a time when I learnt a great deal. That learning is the basis of this thesis.

Recording and Transcription of the Interviews

The interviews are the main data source for this study. For this reason, the interviews were very carefully recorded. In each interview, comprehensive notes were taken and, with the manager's permission, the interview was tape recorded. I transcribed each 'first interview' before I conducted the 'second interview' with each manager. This served to refresh my recall of the first interview and to provide any specific ideas that were raised and inadequately explored in the first interview.

The transcription included the managers' words verbatim. All statements, including repetitions were included. It did not include their starts and stop, partial words, fillers (umm, ah). Long pauses were noted, but the length of the pause was not recorded. Any places where the word was unclear, my best guess was placed there, and the uncertainty noted. This guess was based on what I could hear on the tape and the context of the rest of the sentence. This ambiguity occurred, on average, once or twice in an interview. None of the cases where this occurred were critical to the analysis. The transcriptions were checked by listening to the tape while reading the transcript.

Two points stand out with respect to the transcripts. Firstly, I was fortunate in that I did not encounter any major technical disasters. This may have been due to some strict discipline in using tapes and batteries[4]. One or two tapes were difficult to hear, but not impossible. In one interview, I accidentally turned the 'voice activation' on. This meant that I missed parts of the dialogue, as the tape did not move fast enough to catch all of the words.

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[4] The two main 'rules' I followed were: (1) use the batteries for recording no more than 10 interviews – any playback was done using different batteries; and (2) always take spare batteries and tapes to each interview.

The second point with respect to the transcripts was doing the transcription myself. This meant that I had an excellent knowledge of the interviews, and served to recall the interview to mind very quickly. I also developed a better understanding of my own interviewing style and was able to use this knowledge to improve that style. Doing the transcriptions myself meant that I was extremely busy during the course of the interview. I quickly improved to rate of four hours of transcribing per hour interview. Even at that pace, I was constantly either typing, travelling, interviewing, eating, or sleeping for the entire three months of the data collection.

Interview One

The research design called for two interviews. The first interview was intended to identify and explore the relationships between the performance drivers and the performance outcomes as seen by the manager. Identifying these relationships produced a cognitive map. Exploring these relationships produced an account of the manager's work.

For the interview, I wrote an interview protocol (*see* Appendix One). This protocol provided the basic structure for the interview. It is written as a monologue. This monologue was to be read at the start of the interview to familiarise the interviewee with the study's purpose and methodology. This included some basic guidelines for conducting a cognitive mapping interview.

In practice, this protocol provided a loose structure for the interview that varied according to the interviewees. As I became more familiar with performing the interviews, I relied less on this protocol. Some of the managers caught onto the idea of cognitive mapping quickly and, in that sense, took ownership of the process. Others did not, and treated it as a mechanistic exercise. As the research progressed, I became more adept at recognising the receptiveness to cognitive mapping and tailoring the interview to the individual's responses. The application of the protocol reflected the basic nature of interview research – each respondent and each interview is a unique experience.

Cognitive Mapping

Despite the uniqueness of each interview, the procedure for producing a cognitive map from the ten performance drivers and three performance outcomes followed a standardised procedure. The first step involved providing the manager with a list of these variables and asking them if the items on that list were representative of how they saw performance being influenced in their branch (*see* Table 13.1 for a list of the variables and Appendix One for the list shown to the managers). At this stage they were given the option of adding or deleting any items as they saw fit.

The second phase involved working with each of the three outcome variables. This began by explaining the idea of a cognitive map and giving an example of how a cognitive map could be derived. The idea of causality, as defined in the cognitive maps, was explained for the managers. Then, for each of these variables, the manager was asked, "Which of the other factors on the list directly affect this factor in your branch?" Once the performance drivers effecting each performance outcome were identified, the manager was asked, "Are there any other direct relationships between the variables on the list?"

In the interview itself, I produced notes that identified the links between the concepts. These notes and the interview transcript were used to produce cognitive maps in graphics COPE. Figure 13.1 is a copy of part one set of interview notes used to produce the cognitive map. The numbers on this sheet refer to the concepts, as numbered in Table 13.1. Following the figure is a portion of the transcript from the same interview. The transcript begins as I asked the manager to confirm the concept that I showed them. Finally, Figure 13.2 is the cognitive map produced from this interview. Linking the concepts as the manager described in the interview and as recorded in the field notes (Figure 13.1) produced the cognitive map.

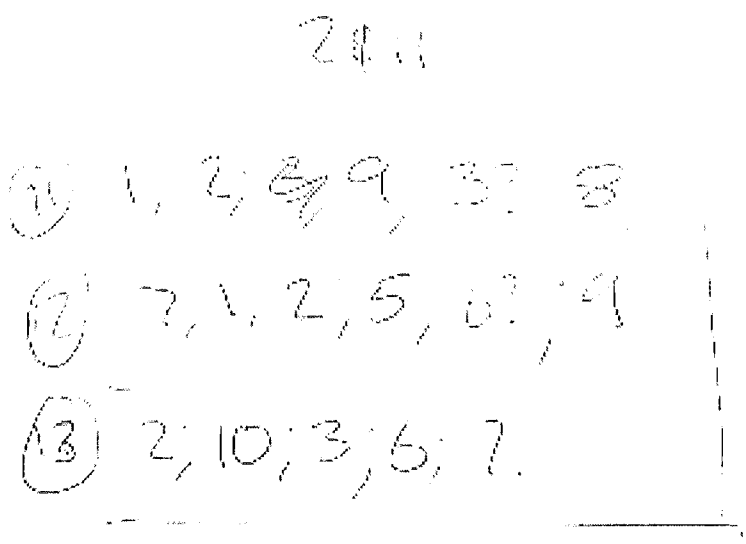


Figure 13.1 Field Notes for a Cognitive Map

No they all seem pretty fair. I think having high levels of staff morale and motivation and having satisfied employees sort of ties into each other. If you've got those two, you should have the other one.

So, the morale and motivation also gives you satisfaction. Right, now on this sheet I've got the same factors there. They're just the same things. Now what I'd like to do is have a look at how each of these cause the three performance drivers that you've got on that side. So just, basically, start with... if we start with customer satisfaction. Which of these lead directly to customer satisfaction.

OK. You've got number 1, number 2, products, number 9, number 3, sort of. I think you can have the right number of staff, you can have any number of staff, but you've still got to have the skills.

OK, so three's important, but you need those [knowledge and ability] as well.

Yep. Definitely do.

Sure. If you think any of them have an indirect effect, if they lead through one of the other factors to customer satisfaction, that's important as well.

I think that's basically it.

OK, now...

Financial performance of the branch you're looking at managing your staff performance, once again number 1, we can double up on these can't we? Number 2, 5, to a certain degree number 6, did I say number 7? Number 7. Did I say number 9? Number 9. That's basically it.

OK and the last one.

Satisfied employees, yeah the main one thing is...

You've already said morale and motivation.

Yeah, morale and motivation, leadership, numbers of staff, number 3, probably number 6, and number 7. Yep.

Now what I'll do is go through and elaborate on these relationships that you've identified. So, OK, we'll start with the staff. The capable and knowledgeable staff and customer satisfaction.

[SEE THE END OF THE CHAPTER]

Figure 13.2 A Cognitive Map

I conducted this part of the interview in two basic ways. In some cases, such as the example shown here, the cognitive map was produced quickly at the start of the interview. In others, the manager explained concepts as we were producing the cognitive map. In these interviews, the cognitive mapping process was interwoven with the remainder of the interview. I tended to favour the second approach in later interviews. In the first interviews, the structure was necessary to overcome my nervousness. In the last interviews, I was more confident and comfortable that I would still cover all of the necessary issues without following the exact structure. In either case this phase produced a list of relationships the manager identified between the variables. The approach clearly biased the results to have most relationships directed towards the three performance outcomes. However, as it was consistently applied, I did not see that as a weakness.

The Managers' Accounts

The cognitive mapping was one purpose of the first interview. The second purpose was to explore the relationships the manager identified between the concepts. This involved working through the list of relationships and asking the manager to explain how they felt the relationship worked in their branch. This phase of the interview was far more open and less structured.

The last sentence of the extract from an interview is my introduction to this part of the interview. Using this statement, I began exploring the meaning of both the concepts and the relationships that the manager had described. This included asking the manager to explain 'how' and 'why' each relationship occurred and what it meant to the manager. It also involved the managers defining the concepts to me. These definitions gave me insight into what the concept meant to the manager.

The two general approaches described in the cognitive mapping part of the first interview also effected the elicitation of the managers' accounts. In the earlier interviews, I tended to produce the list of concepts and relationships, then ask the manager to explain each relationship in turn. In the later interviews, I tended to ask the manager to explain the relationship as they were elicited.

Second Interview

The second interview was less structured than the first interview. This interview had two purposes. The first purpose was to confirm the cognitive map. The second purpose was to continue to explore the manager's views on their work and their job. This second purpose dominated the second interview.

Confirming the Maps

The first interview produced a cognitive map for each manager in the form of a set of relationships between variables. This map was represented visually (*see* Appendix Two for all of the cognitive maps). The first part of the second interview presented the cognitive maps to the manager and asked them if they felt it was a fair and accurate representation of their thinking. They were explicitly given the opportunity at this stage to modify the map in any way they saw fit.

The managers' responses to the cognitive maps were varied. They ranged from seeming co-operative, but not highly engaged, to extremely interested. Those that were disinterested co-operated in confirming the maps willingly. The interested managers seemed to find the mapping process helpful. Two of the managers asked to keep their cognitive maps and one of the managers asked to read her interview transcript. The changes made at this stage were minimal. The majority of the maps were unchanged; a few changed one or two links. The maps that required more substantial changes were usually because the map was not well completed in the first interview.

Further Exploration

Once this was done, the second phase of the interview began. In this phase the interview was used at its most open and unstructured. Three things had to be accomplished in this phase of the interview. In some cases, the first interview was incomplete; some of the concepts or relationships were not adequately explored – the second interview had to complete this process. Secondly, any issues raised by the manager in the previous interview that I felt needed further exploration were explored. Thirdly, issues raised by other managers were introduced to the manager and, where they drew a response, these issues were explored.

The first interviews were extremely varied in the length. In some cases, all of the issues I wished to cover were addressed in about 40 minutes. In others, I did not get to all of these issues before the manager or I had to finish the interview. This was up to an hour and a half long in some cases. The reasons for this were varied. Some managers, with little prompting, went into considerable detail in answering my questions. Others required a lot more prompting. In at least one case, an external change (a major announcement concerning the organisation) dominated the interview. Finally, my skill as an interviewer developed. By the end of the process, I could manage the time in the interview effectively so that a 70 minute interview would usually cover all of the issues.

The second reason for the second interview was to explore and validate the concepts raised by that manager in their first interview. This meant asking them to explain anything that I did not understand, testing my interpretations of their ideas, or simply getting more detail on an issue that was relevant for my investigation.

The third reason was to explore the commonality of themes between the managers. This meant testing ideas I had encountered in other interviews to see if they resonated with this manager's experience. Some did; some did not. This testing was left until later in the interview process, to avoid unnecessarily leading the managers to conformity in their responses. I did find a lot of conformity. Some of the ideas I introduced were drawn from the managerial literature, rather than from other interviews.

Finally, both interviews left time at the end for the manager to add any additional information to the interview that they felt needed to be said. In most cases, this opportunity was not used. When this opportunity was used, the manager tended to reiterate themes that had already been stated in the interview.

Performance

The main data collection process described thus far is the process to collect the data that represents the manager's cognition. In addition to the manager's cognition, the first of the research questions also requires that I have some assessment of the performance of the managers.

I discussed some theoretical aspects of performance in Chapter Eight. In that chapter I argued that performance was a broad concept that incorporated many different ideas. The idea of performance as something that is measurable implies that it is, in some sense, separable from the organisation – performance is an outcome. This research question implies that performance is an outcome that the managers' cognitive maps exert a causal influence over.

However, in that chapter I also argued that performance was constructed by organisations and used to provide meaning to organisational activities (Corvellec 1995). As well as providing meaning, performance serves numerous other functions in an organisation, such as bringing a wide range of ideas together (Cameron and Whetten 1983), initiating action (Swieringa and Weick 1987) and legitimating organisations and management (Pfeffer and Salancik 1978; DiMaggio and Powell 1983). What performance cannot do is provide an objective, global measure of an organisation's operations.

Based on this argument, it seems futile to attempts to collect 'objective' performance measures. Any performance measure can only ever succeed in providing a partial representation of an organisation's activity. Furthermore, a measure of performance developed without the constant involvement of the organisation's participants would not incorporate the meanings these individuals associate with performance. The meaning of performance is an integral part of the organisation for which that performance is assessed. The performance that is important in an organisation is the performance that the managers believe is important. It is meaning that is important in qualitative research (Guba and Lincoln 1994; Van Maanen 1979).

The conceptualisation of performance adopted in this thesis means that the most appropriate performance measures used in this study are the organisation's own measures of performance. The use of an organisation's or industry's performance measures is well established in studies of managerial cognition (*eg* Jenkins and Johnson 1997; Thomas *et al* 1993; Laukkanen 1993) and other studies of managerial effectiveness (*eg* M^{c}Cabe and Dutton 1988). It seems that these measures provide the most meaningful referent against which a manager's behaviour can be evaluated.

Analysis

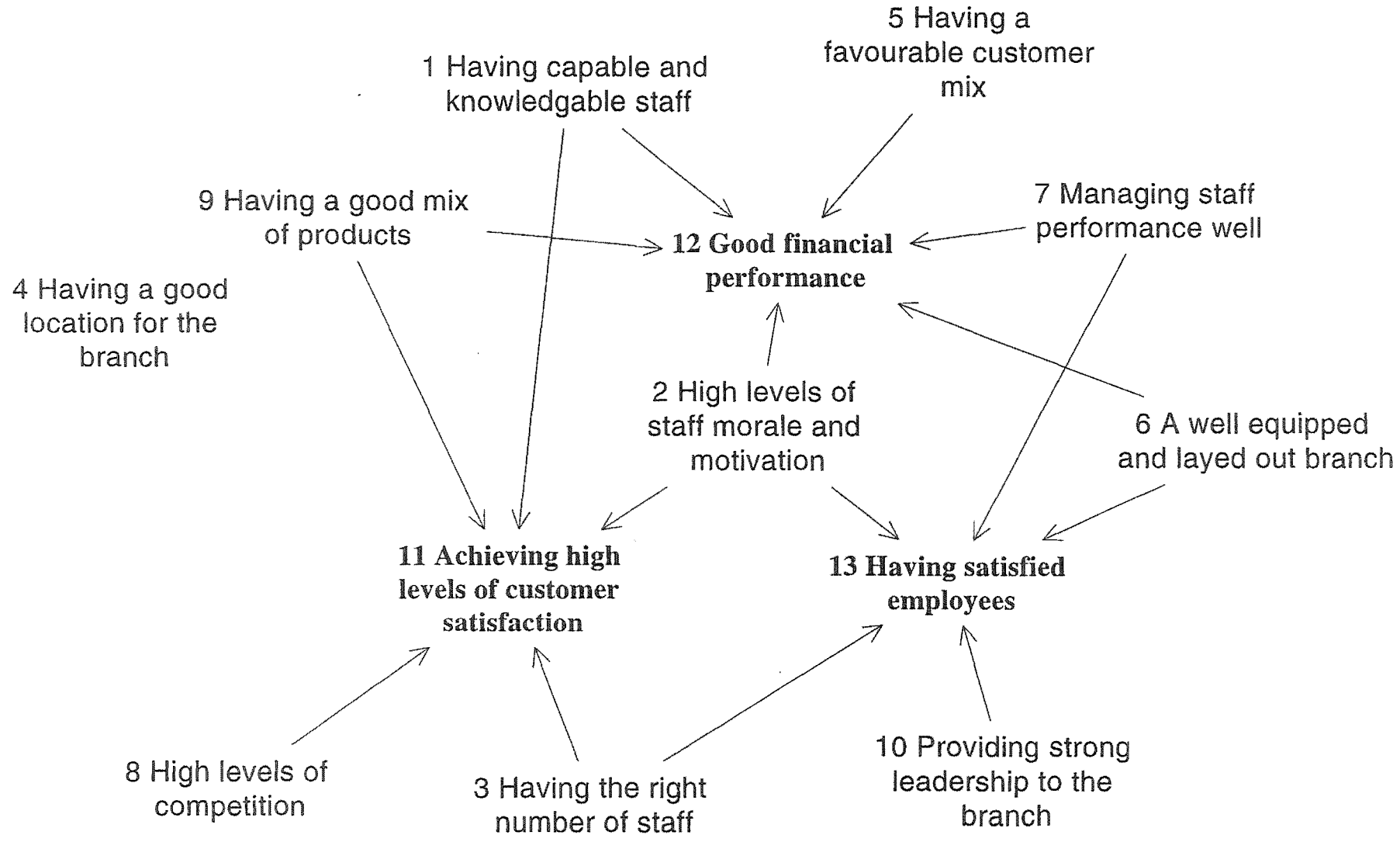
The specific approaches for analysing and understanding the data collected in this study are discussed in the respective chapters on cognitive mapping (Chapter Fifteen) and cognitive scripts (Chapter Sixteen). The reason for this is the technical and specific nature of the analytical methods. These sections are more easily integrated with the results.

Conclusion

In this section, I described the research process used for this investigation. This began with selecting a single site then establishing contact with the organisation. From this initial contact, I then moved to the main data collection phase. I have focused on the practical issues of performing this research. I have drawn on the techniques that I described in chapters Eleven and Twelve.

This description has been deliberately reflexive. Its purpose is to explain the research process in some detail. This explanation is intended to include my rationales and reasons for the decisions I made. It is also intended to give the reader a sense of the research itself from which they can judge its trustworthiness.

Figure 13.2 A Cognitive Map



Chapter Fourteen

The Research Site

The investigation was conducted at a single site. In this chapter, the research site will be described. The purpose of this description is to provide background to the study. This background information is drawn on in the later analyses. It is also intended to give a taste of the organisation to the reader, so they might better understand the context in which the data was collected. The topics covered in this chapter are the organisation, the managers, and the performance management process and coaching.

The Organisation

The organisation operates in the financial services industry. It is a nationwide organisation consisting of nine geographic regions and a head office. Each region has an administrative structure, including the regional manager. This structure involved the centralisation of certain activities and the largest customers. It also involved making decisions that effected all of the branches within the region – decisions ranging from sponsorship to product offerings.

Table 14.1 Branch Sizes by Area

Area	Predominant Branch Type	Number of Branches	Size (Number of Staff) *Average*	*Largest Branch*	*Smallest Branch*
1	Urban	7	19.1	30	8
2	Suburban	11	11.5	25	5
3	Suburban	7	17.6	29	8
4	Rural	7	11.0	24	6
Overall		32	14.4	30	5

Within each geographic region, there are a number of areas. For the region included in this study, there were five areas. Four of these were included in the study[1]. Each area also has an administrative structure. The area level was the main level at which the managers interacted with one another. The area administrative structure involved providing training and support for the branch managers. The area managers report directly to the regional manager.

Each area consists of a number of branches. Table 14.1 shows the number of branches in each area, and the size of the branches in terms of staff numbers. Each branch included here had a manager responsible for the branches operations. In some cases, a manager was also responsible for a small satellite branch. At the time of the study, there were 35 branches in the region. Three of these branches did not have managers in them as they either were pending an appointment or managed from another branch. Since they had no manager, these three branches were excluded from this study.

Change

Over the past 15 years the New Zealand economy has undergone a large number of legislative changes. The financial services sector has been very strongly hit by these changes. The impacts are diverse, but include an increase in competition, shrinking margins, a wider range of services offered by each player in the market, and a generally more financially astute and demanding customer base.

All of these changes have been reflected in the organisation. To attempt to summarise all of the changes would be enormous task. Some of the more notable were a change in the branch manager's role from being customer to being staff focused; the elimination of assistant managers and supervisors in the branch; reductions in the number of staff and number of branches; competition; and changes in the ownership of the organisation.

---

[1] The four were located in and around the Christchurch area. The fifth area's branches were scattered throughout the South Island.

The branches' internal structure has also been changed. Prior to the time of the study many of the larger branches had assistant managers and all had operations supervisors (OSs). The assistant manager position was removed, along with the branch manager's role being redefined. The assistant managers had performed many the staff management functions for the branch. The OS supervised most of the junior staff in the branch. During the course of the study, another change was instigated further reducing the number of OSs. For many branches, this meant the complete elimination of that role, with the OS's responsibilities being assigned to the manager. This principally referred to increase in the amount of staff management in the branch manager's role. This is described in more detail with respect to the managers' role (*see pp* 151-152).

The organisation has, along with most industry participants, come to believe that its branch network is too large and expensive in the current industry environment. It has therefore taken steps to reduce the size of this network. The two most obvious faces of this are the reduction in the number of staff in each branch and a decrease in the number of branches. The reduction of the number of staff, along with the same or higher levels of business conducted in each branch represents increases in efficiency. During the course of the data collection one branch was closed. While there have been some redundancies in the past, the current reductions were achieved through voluntary staff turnover.

The higher level of competition has meant a number of changes for the organisation that had a direct impact on the branches. These include the introduction of a more diverse product range and decreases in profit margins along with an associated change in the pricing philosophy used. A more diverse product range means that the organisation now provides a greater range of add-on services to their traditional core business. This increases the importance of sales techniques for the staff. The changes in pricing and margins have led to changes in the types of business that are profitable and the selectivity of the organisation in selecting and serving its customers. It has also led to some adverse customer reaction.

The organisation, as a whole, was adopting a proactive attitude towards the changes. The following letter is a memo circulated to all staff within the organisation. It had achieved some notoriety by the time of the data collection. Several managers mentioned it – with varying degrees of commitment and acceptance. This memo is an excellent example of the rhetoric that surrounded the change process in the organisation.

The Train to Success - Are you on it?[2]

> There are some of you well and truly on the train – a few of you up front on the engine and eager to take your turn at driving it.
>
> A number are on board, some of you have found your seat while others are still looking. It is my strong advice that you should find your seat before the train leaves the station. I don't want you falling backwards and ending up in the guard's van... We all know what's happened to the guard's van!![3]
>
> There are some standing on the platform and that is a real concern to me because the train is about to leave and it's the last train.
>
> I desperately want a full train and I am committed to getting you all on board but the reality is that the train is ready to leave and I don't have the desire to delay it.
>
> I can't force any of you on board but I sure as hell want you on board. Ultimately, it has to be your decision and that decision needs to be made now. I don't have the time nor the inclination to devote to anyone who can't make up their mind. I am looking for commitment, not to me, but to yourselves, to your team and to this [organisation]. It is not going to be an easy train to ride, this is not Disneyland – but for those of you who make it to our destination, it will be well worth the trip.

---

2 This letter is included verbatim. It has not been changed at all from the copy I received from the organisation.

3 In New Zealand, there was a public upcry at the removal of the guard's vans from trains. This change meant that the guards all lost their jobs.

Ownership

The final issue, with respect to the organisation, is the change in ownership. The organisation was initially an association of regional community trusts. These trusts merged their operations to form a nationwide organisation, still owned by the trusts. Two years before the data collection, the organisation was listed on the stock exchange. The community trusts were the major stockholders, but the trusts and the organisation were completely independent.

The initial share issue prevented the trusts from selling their controlling share in the organisation for two years. During the course of the data collection this proviso ended and the organisation was sold to one of its competitors. This was the last major New Zealand owned organisation in this industry. Its sale to a foreign organisation led to a large amount of public debate and parochial backlash – people were upset to see the shift in ownership to offshore interests.

The main implication of this for the branch managers was the fact that both organisations have large established branch networks. Given the industry-wide trend to reduce the size of branch networks, it would be expected that there would be merging of branches and potentially a lot of branch closures. The details of these mergers were unknown at the time of the data collection.

The managers' responses to this change varied. Some saw the change in ownership as inevitable and accepted it. Others viewed it positively. Some viewed it negatively, reflecting the parochialism in the general public. Those that viewed the change as inevitable felt that the performance of the organisation made it an attractive investment. It has a large personal customer base, but lacked expertise and resources for commercial customers when compared to some of the competitors. Those that viewed the change positively felt that the synergies between the two organisations would benefit them and their customers. Those that viewed it negatively felt that there was some form of 'selling out', or loss of an advantage in being a New Zealand owned company. All of the managers claimed their branch's staff were superior to the staff of their new owners.

The Managers

Thirty-two managers were included in this study. In this section, these managers will be introduced. The introduction to the managers begins by describing the branch manager's role in the organisation. Then it will describe the demographic characteristics of the managers and their branches in this investigation.

Their Role

The branch manager's traditional role in this industry was to sell the organisations services and to perform the associated administration. It was into this role that the majority of the managers were promoted as branch managers. Their new role requires them to manage the staff in the branch and the performance of the branch; their former responsibilities are assigned to relationship managers. The managers described their new role as involving 'real management', being responsible for the staff and the performance of the branch. This includes far greater responsibility for the human resource functions in the branch. They also described it as involving setting direction for the branch and 'flag waving' being a public figurehead for the organisation.

Demographics

The two main demographic characteristics used in this study are the manager's experience and the size of the branch. The manager's experience is measured by their tenure; the size of the branch is measured by the number of staff. Table 14.2 summarises these characteristics for all of the managers.

Table 14.2 Manager Demographics – Tenure and Number of Staff

	Tenure (Years)			Number of Staff	
	In the Organisation	As a Manager	In the Current Branch	People	Full Time Equivalent
Mean	21.3	13.5	4.4	14.5	12.64
Maximum	34	26	12	30	28.87
Minimum	13	4	1	5	4.75

Tenure in the organisation is the number of years the manager has worked for the organisation. Tenure as a manager is the number of years that they have been managing the current branch. Tenure in the current branch is the number of years they have been in the branch they were managing at the time of the interview. The number of staff includes both the number of people working for the branch (part or full time), and the full time equivalent (FTE) staffing level of the branch, at the time of the second interview.

These figures show that the managers have been with the organisation for long periods of time. The minimum of 13 years and a mean of over 20 years indicate staff that are loyal to the organisation. Similarly, their experience as a manager tended to be high, with most having been in that role for over 10 years. The managers also tended to stay in one place for relatively long periods of time. A mean time of 4.4 years in one position is relatively long in managerial terms.

The branch sizes were small. They ranged from five to thirty staff (*see* Table 14.2). This makes each branch roughly equivalent in terms of size to the average New Zealand business. In 1992, 98.5% of New Zealand businesses employed fewer than 50 staff; these businesses employed 58.8% of the New Zealand workforce (New Zealand Statistics 1994). Most people in New Zealand work in places about the same size as the branches described here.

The Performance Management Process and Coaching

The organisation implemented a process for managing the performance of their staff. This process was called the Performance Management Process or PMP. Added to the performance management processes is a series of techniques, generically called coaching. These performance management tools are discussed later in the thesis (especially in Chapter Fifteen). The purpose here is to introduce these ideas and their key elements. This information is based on the managers' descriptions of the PMP and coaching and a copy of the form that accompanies the PMP.

The Performance Management Process

The PMP is a form of management by objectives. It involves the staff member and their supervisor or manager in jointly setting the staff member's objectives for the coming year. All members of the Organisation's staff undergo a PMP, from senior management to part time staff. The PMP assesses individual performance. A few managers had attempted to include team based measures, but they were the exception rather than the rule. When it is completed, both appraiser and appraisee sign the PMP form.

The first part of the form involves identifying the staff member's performance objectives for the coming year. There are six objectives. The objectives are 'SMART' (Specific, Measurable, Attainable, Realistic, Timeframed). In addition to the objectives, there is room to identify the resources including training required to achieve the targets. Each objective is given a weighting, reflecting its importance in the individual's overall performance.

On the form, the objectives[4] are presented as being negotiated between the appraiser and appraisee. Ideally, the target would be self set targets, by the employee. In practice, the negotiation involved the manager increasing the performance level of the staff member. Most managers claimed that they attempted to use some of the employee's input when this was forthcoming.

These objectives are reviewed at four and eight months after they are set. For each objective performance is noted as 'on target' or 'improvement needed'. In the progress reviews, it is intended that "Appraiser and Appraisee discuss and document overall performance to date, based on the objectives and Key Accountabilities." This involves the use of critical incidents, explaining why if performance is not up to expectations, and the possibility of revising the objectives "if they no longer apply or if conditions have significantly altered since the beginning of the cycle."

At the end of the year, the performance relative to each objective is assessed. For each a three point scale[5] was used:

1 = The objective was not achieved within the standards set (eg deadlines, quality required etc).

2 = The objective achieved and all the standards met (eg deadlines, quality required etc).

3 = The objective was achieved and the standards exceeded (eg prior to deadline, exceeded quality requirements etc).

---

[4] Some of the managers had systematised the objectives, producing a list of potential objectives from which their staff can select. Others had worked together in their area to produce ways of quantifying a series of different objectives relating to areas such as customer service and teamwork.

[5] This process was later modified to use a five point scale. Some of the managers had already implemented a five point scale, arguing that there are differences between good and great performance. The managers using a five point scale converted the results to conform to a three point scale at the end of the process.

The rating for each objective (1, 2, or 3) was multiplied by the weighting for that objective. These scores were summed and divided by 100 to give the individual's overall objective rating, between 1 and 3. If their objective rating exceeded 2.67, they received a bonus.

The final part of the form, completed at the end of the one year cycle, was related to career planning and development. This involved identifying the individual's strengths and weaknesses, the work they found most and least satisfying, their long and short term career aspirations, and what they and the organisation can do to help them achieve these aspirations. Beyond this are the appraiser's comments on the individual's potential for career progress.

The back page includes summary comments and requires appraiser and appraisee to sign off on the form. Until the form is signed off, it is not complete. There is a process for dealing with disputes that arise from this process.

Coaching

In conjunction with the PMP, the organisation implemented a coaching system. This system is based on the image of the manager as a coach whose role is to support the staff and help them perform. Two types of coaching were described: focus coaching and observe and coach. The first, focus coaching, involved regular meetings between the staff member and their manager or supervisor, usually monthly. At these meetings the staff members targets were reviewed and action plans were designed to help them to reach these targets. The manager's role in these sessions varied, but usually included encouragement, identifying any training needs, and looking for ways that they can help the staff member perform.

Observe and coach is, as the name suggests, a technique where the coach observes a staff member in their role, for the managers concerned, this usually meant some form of customer interaction. After observing them, the coach talked with the staff member about their performance. In this discussion, the standard format was to recognise what the staff member did well, and identify a few areas (no more than three) that they can improve for the next time.

These two coaching techniques were intended to work in conjunction with the PMP to provide a systematic tool for managing the staff in the organisation. All staff, regardless of level, were expected to be managed by this system. It is intended to serve the roles of assessing, motivating, and counselling the staff. As such, it may place conflicting demands on the manager using this system. They do, however, provide the managers with some specific things that that have to do in managing staff performance.

Discussion

In this chapter, the organisation has been introduced. The purpose was to provide the reader with a sense of the organisation and the context within which the data was collected. This chapter described the organisation – including issues of change and ownership that were important to the managers. It then described the managers – their role and some demographic characteristics of the managers.

The purpose of this thesis is to explore managerial cognition and performance. In this chapter the organisation where this exploration has been introduced. The three other chapters in this section described the techniques that were used and described how they were used. Using these techniques, the data was collected. The next section describes the analysis of this data and presents the results of the different analyses.

Section Four

Empirical Results

The original question that inspired this research was "How does the manager's cognition effect their performance?" In the first section, this question was introduced. Some background information regarding management and cognition was provided and the assumptions of the research were outlined.

The next task was to review this question at a theoretical level. This review highlighted different ways of conceiving the central concepts and led to the question being refined into two questions:

> *What is the relationship between the manager's cognitive map and the performance of their organisation?*
>
> *What part does the manager's cognitive script play in their management of staff performance?*

Section Three looked at how these questions would be addressed – the methodology. In this section, the techniques to be used were described. These were cognitive mapping and interviews. These techniques were then put in the context of the research process used. Finally, the research process to be used in this study was described.

The purpose of this section is, in a sense, the purpose of the entire thesis. In this section, all of the ideas presented in the previous sections are brought together, along with data gathered for this thesis. This section will report on these studies.

There are three chapters in this section. Before their contents are described in detail, it is important to outline why there are three separate empirical chapters in this thesis. The main reason is the differences between each chapter. The first two chapters are strongly based on the data, but they use completely different conceptualisations of cognition, management, performance, and the organisation. The third chapter approaches these basic ideas the same way as the second chapter, but is based more strongly on theory than on the data. These differences are important to this thesis.

The first chapter addresses the question, "What is the relationship between the manager's cognitive map and the performance of their organisation?" The manager's organisation is their branch – its performance is measured financially. This study looks for variations between managers of high, medium and low performing branches.

The second chapter addresses the question, "What part does the manager's cognitive script play in their management of staff performance?" Managing staff performance is refined to focus on managing poor performance. The script is derived from the managers' descriptions of managing poor performance. The implications of this script for the management of the organisation conclude this chapter.

The third chapter extends the intention behind the second question. That question was originally intended to focus on how the managers' cognition effected the organisation. At the same time, it was obvious that the organisation was effecting the managers' cognition. These two effects are combined and – using Giddens' (1984) structuration theory – integrated in a model of the organisation where the manager's cognition is central to the process of organising. This chapter is more theoretically driven, differentiating it from the data driven approach in the first two empirical chapters.

There is no discussion of the collective results from these chapters in this section; that is done in the following section.

Chapter Fifteen

Cognition and Performance

This thesis is guided by the question, "How does the manager's cognition effect their performance?" This question involves four elements. The manager, their cognition, the organisation, and performance. Section Two reviewed a series of theoretical issues relating to these four elements. This resulted in the original research question being refined into two more specific questions. This chapter answers the first of these: "What is the relationship between the manager's cognitive map and the performance of their organisation?"

The literature reviewed earlier in this thesis provides some insight into this question. At the same time, this literature provided us with a confusing array of results and ideas. This is illustrated most clearly by the two empirical studies that have tried to relate managers' cognitive maps to their performance (Laukkanen 1993; Jenkins and Johnson 1997). One found a relationship between the structural characteristics of the cognitive maps and performance (Laukkanen 1993); the other did not (Jenkins and Johnson 1997).

This chapter assumes that cognition is a variable that influences the manager's behaviour, which then influences the performance of their organisation. It assumes that the manager is responsible for the performance of their organisation. To answer the question, this chapter begins by reviewing the main ideas of this thesis that lead to this investigation. It then describes the processes by which the cognitive maps were represented and analysed in this thesis. The various analyses and their conclusions will end this chapter.

Performance and Management

Management was introduced as the principal focus of this investigation. Management is defined as either achieving work through others (Heller 1972; Stewart 1986; Cammock 1991) or the occupation responsible for sustaining the organisation (Watson 1994b). However management is defined, it is an important institution in our societies.

The studies of management have uncovered three central findings, discussed in Chapter Two. Management is characterised by high levels of activity – activities that are various, brief and fragmented (Mintzberg 1973; Martinko and Gardner 1985; Hales 1986; Stewart 1989). Management is also characterised by high levels of verbal communication and low levels of written communication (Kotter 1982; Martinko and Gardner 1985; Hales 1986; Stewart 1989). Finally, management is characterised by a context that influences the manager's job (Willmott 1984; Hales 1986; Stewart 1989; Martinko and Gardner 1990).

The importance of performance to management was outlined in Chapter Two. The major reviews of managerial studies all argued that performance was conspicuously absent from our conceptions of management (Martinko and Gardner 1985; Hales 1986; Stewart 1989; Mintzberg 1994). These reviews agreed that this was, in part, because performance was poorly conceived (Hales 1986; Stewart 1989; Mintzberg 1994).

Performance is a topic that has eluded the grasp of most people who have attempted to study it. Theoretically, performance is presented as, at least, a multi-dimensional construct within which the dimensions often conflict (Cameron and Whetten 1983) and, at most, a narrative constructed according the its own logic (Corvellec 1995). With regard to managerial effectiveness, Hales (1986: 111-112) provides at least five different ways in which performance can be conceived. These contrasting views do not make performance out to be an unimportant construct. Whether performance is a narrative or a reflection of the organisation, managers take performance seriously. The performance that matters is the performance that the managers pay attention to.

Cognition and Management

The reviews of the managerial literature discussed in Chapter Two also pointed to cognition as an important way of understanding management (Martinko and Gardner 1985; Hales 1986; Stewart 1989; Mintzberg 1994). Cognition was presented as an integrating mechanism that provided coherence to the manager's work (Kotter 1982; Hales 1986; Mintzberg 1994) and as an important competency for management (Boyatzis 1982; Martinko and Gardner 1985).

The term cognition is one that has risen in prominence in many of the social sciences. The rise of cognitive science and its influence on managerial studies was discussed in Chapter Three. Cognition was presented as a complex topic that has been given many different definitions. For this thesis, cognition was defined as the process by which the mind acquires, processes, organises and uses knowledge and experience (*see* Bougon *et al* 1977; Weick 1979b).

Cognition as it has been used in the managerial literature was explored in more detail Chapter Five (*see* Lord and Maher 1991; Schneider and Angelmar 1993; Walsh 1995). Cognition can be treated as a variable or as a part of the organising process. In this chapter, it is treated as a variable (*see* Chapter Six). From this perspective, cognition can then be modelled in several ways. Cognition is usually treated as being synonymous with cognitive structures – schemata. Of the different types of schemata, the cognitive map has been most frequently associated with performance (Jenkins and Johnson 1997; Laukkanen 1993; Eden 1989).

Cognitive maps, as an empirical tool, were introduced in the Chapter Eleven. In that chapter, processes by which cognitive maps have been produced in the managerial literature were described. Chapter Thirteen described a three stage process to produce cognitive maps. This began by deriving a set of concepts using a questionnaire, identifying the relationships between these concepts in an interview, and confirming the cognitive maps in a second interview.

The analysis of the cognitive maps seeks to identify any relationship between the managers' maps and the performance of their branch. The first issue to address is the representation and analysis of the cognitive maps. Following that, the performance measures are described in more detail. Then two analyses of the data are presented. The first looks for relationships between the structural characteristics of the maps and performance using ANOVA and regression. The second compares the high medium and low performing managers in terms of the relationships within their maps. Finally, the results and implications of the findings of these analyses are discussed.

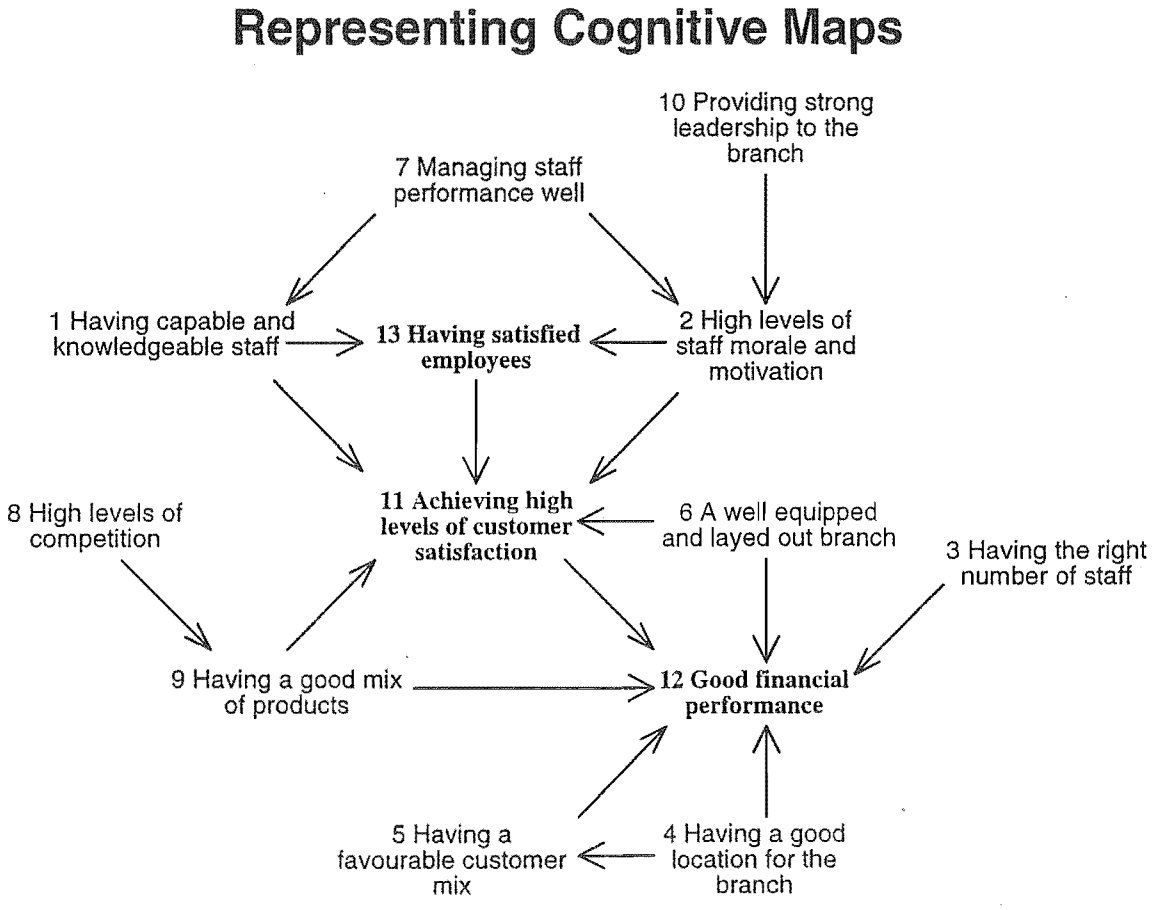


Figure 15.1 Graphical Representation of a Cognitive Map

The cognitive maps elicited can be represented in two mathematically equivalent ways – a graphical representation and an adjacency matrix (Axelrod 1976; Bougon *et al* 1977; Ford and Hegarty 1984; Langfield-Smith and Wirth 1992; Daniels *et al* 1994b). Figures 5.1 and 15.2 show the two forms of the same map. Figure 15.1 is a graphical representation with the nodes representing the concepts and the arrows representing causal links between the concepts. Figure 15.2 is an adjacency matrix. The concepts are listed in a square matrix. The vertical axis indicates the causes and the horizontal the effects. A '1' indicates a positive effect from the horizontal construct to the vertical construct, a '-1' indicates a negative relationship, and a '0' indicates no relationship. No other values are allowable. The matrix is asymmetric about the diagonal axis.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	
1	0	0	0	0	0	0	0	0	0	0	1	0	1	2
2	0	0	0	0	0	0	0	0	0	0	1	0	1	2
3	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4	0	0	0	0	1	0	0	0	0	0	0	1	0	2
5	0	0	0	0	0	0	0	0	0	0	0	1	0	1
6	0	0	0	0	0	0	0	0	0	0	1	1	0	2
7	1	1	0	0	0	0	0	0	0	0	0	0	0	2
8	0	0	0	0	0	0	0	0	1	0	0	0	0	1
9	0	0	0	0	0	0	0	0	0	0	1	1	0	2
10	0	0	0	0	0	0	0	0	0	0	1	0	0	1
11	0	0	0	0	0	0	0	0	0	0	0	1	0	1
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	1	1	0	0	1	0	0	0	1	0	6	6	2	18

Figure 15.2 Adjacency Matrix Representation of a Cognitive Map

The diagonal in this matrix represents the effect of a concept on itself. For the purposes of this analysis, this effect is not represented. The row and column sums represented here are important. The sum of each row indicates the number of other concepts that are effected by that concept. This is the concept's outdegree (Axelrod 1976; Bougon *et al* 1977; Eden, Ackermann and Cropper 1992). It can be used to indicate the extent of the concept's influence in the cognitive map. The sum of each column represents the number of other concepts that effect that concept: the concept's indegree (Axelrod 1976; Bougon *et al* 1977; Eden *et al* 1992). It may be an indicator of the importance of the concept in the map or the extent to which it is influenced by other concepts. As a check to the mathematical accuracy of the adjacency matrix, the total number of indegrees and the total number of outdegrees should be equal – both are the number of links in the map.

In Figures 15.1 and 15.2, concept 1, 'Having capable and knowledgeable staff,' has an indegree of 1, and an outdegree of 2. This means it is effected by one concept (concept 7, 'Managing staff performance well') and effects two concepts (concept 13, 'Having satisfied employees,' and concept 11, 'Achieving high levels of customer satisfaction'). This information can be derived from either form of the cognitive map.

Cognitive maps represent cognition in a way that facilitates analysis (Eden *et al* 1983). Maps represented graphically are best suited to visual analysis. These matrices are the data form better suited for mathematical analysis (Axelrod 1976; Bougon *et al* 1977). From these matrices the structural features of the map are derived (Eden *et al* 1992); the distance between each pair of maps in the data set can be measured (Langfield-Smith and Wirth 1992; Daniels *et al* 1994); the maps can be aggregated (Bougon *et al* 1977; Ford and Hegarty 1984); and the existence of paths from one concept in the map to another can be explored (Axelrod 1976).

Features on the Cognitive Landscape

Cognitive maps represent an individual's cognition. As a representation they include certain features while excluding others (Weick 1990b; Huff and Fletcher 1990). In this section the features of the cognitive maps that will be analysed here are introduced and defined. These features include some simple structural dimensions of the maps, some more complex emergent features of the maps, and a method for aggregating the maps for subgroups (Eden *et al* 1992; Axelrod 1976; Bougon *et al* 1977).

Simple Features

Cognitive maps are a set of concepts and relationships between these concepts in the form of links. The most basic information regarding a cognitive map is in the form of the number of concepts used in the map and the number of links (Eden *et al* 1992). In the graphic map, concepts are represented in the graphical map as text (*see* Figure 15.1; they are represented in the matrix as a column and row (*see* Figure 15.2). In this study the number of concepts is limited to thirteen (*cf* Chapter Eleven; Bougon *et al* 1977; Ford and Hegarty 1984). However not all of the managers interviewed included all thirteen concepts in their map. So the number of concepts provides some variation that may be useful. This is indicated in an adjacency matrix by a concept with no indegrees or outdegrees. In Figure 15.1 and 15.2, all concepts are used.

The second basic characteristic of a cognitive map is a link between two concepts. Links are represented in the graphical map by a line between two concepts. A link from concept *i* and concept *j* is represented by a '1' in the cell *ij* of the adjacency matrix. The number of links in a cognitive map is the sum of the indegrees or outdegrees. The number of links can be combined with the number of concepts to form a measure of density: the number of links divided by the number of concepts (Eden *et al* 1992).

The final simple characteristics are the number of heads and the number of tails. A head is a concept that effects no other concepts. In the graphical map a head is represented by a concept with no arrows leading out of it; in the matrix it is represented by a concept with 0 outdegrees. In Figures 15.1 and 15.2 concept '12' is a head. A tail is a concept that is effected by no other concepts. In the graphical map this is represented by a concept with no arrows leading into it; it is a concept with 0 indegrees from an adjacency matrix. In Figures 15.1 and 15.2 concepts '3', '4', '6', '7', '8', and '9' are tails (Eden *et al* 1992).

Emergent Features

Emergent features can be logically derived from the structure of the map; and mathematically derived from the adjacency matrix. The first issue to consider is a path (Axelrod 1976). A path involves following links between concepts to move from one concept to another. From Figure 15.1, a path exists from 'Providing strong leadership to the branch' to 'Good financial performance'. The shortest path between these two concepts involves three steps ('Providing strong leadership to the branch' → 'High levels of staff morale and motivation' → 'Achieving high levels of customer satisfaction' → 'Good financial performance'). There is also a path of four steps in length ('Providing strong leadership to the branch' → 'High levels of staff morale and motivation' → 'Having satisfied employees' → 'Achieving high levels of customer satisfaction' → 'Good financial performance').

Paths can also be derived from the adjacency matrix (Axelrod 1976). Raising the matrix to the n^{th} power produces a matrix where a '1' in cell *ij* indicates a path of length *n* from concept *i* to concept *j*. The maximum possible path length in a cognitive map is the one less than the number of concepts in the map. Therefore, the reachability matrix is calculated from an adjacency matrix with the following formula:

$$\text{Reachability Matrix} = \sum_{n=1}^{N} \text{Adjacency Matrix}^{n}$$

Where N = the number of concepts.

The reachability matrix shows the number of paths that exist between any pair of concepts, if there are no loops in the map. The usefulness of this matrix is to indicate if it is possible to follow links from one concept to another. This is indicated by a non-zero value in the corresponding cell.

Reachability is also used to calculate the centrality of a concept. Eden *et al* (1992) use centrality to indicate the importance of a concept in a map. To compute the centrality Eden *et al* (1992) ignore the direction of the links. To represent this in an adjacency matrix, it is necessary to make the matrix symmetrical around the diagonal. Therefore any cell *ij* that contains a '1' means that cell *ji* should also contain a '1'. The next step is to compute the reachability matrices for different path lengths (*Graphics COPE* computer package uses 3 as a default *see* Ackermann 1995). For each concept the number of paths of each length is divided by the length of the path and summed. This provides a measure of centrality. The main caveat of this is that only the shortest path between any two concepts is considered in this calculation.

Comparative Measures

Bougon *et al* (1977) attempt to identify the group map for the Utrecht Jazz Orchestra. To do this they identified a set of 17 variables and asked the members of the Orchestra to relate them to one another. This produced a cognitive map for each member of the Orchestra. The next step was to calculate some way of identifying the location of each concept in the collective map of the Orchestra. To do this they calculated generalised indegrees and outdegrees for each concept.

This involved adding the adjacency matrix for each member of the Orchestra. The resulting matrix indicated the total number of links between each pair of concepts. Dividing the value in each cell by the number of maps being aggregated produced an average number of links (between 0 and 1) between each pair of concepts. 0 indicates that no-one claimed that link exists; 1 indicates that everyone claimed that link existed. The matrix of these links is referred to as the average adjacency matrix. The average adjacency matrix for the entire data set of this study is shown in Figure 15.3.

	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	0	0.06	0.09	0	0	0.03	0	0	0	0	0.97	0.88	0.72	2.75
2	0	0	0.03	0	0	0.03	0	0	0	0	0.75	0.75	0.91	2.47
3	0.09	0.09	0	0	0	0.03	0	0	0	0	0.88	0.56	0.72	2.38
4	0	0	0	0	0.19	0.03	0	0.09	0	0	0.59	0.50	0.13	1.53
5	0	0.03	0	0	0	0	0	0	0.03	0	0.22	0.81	0.47	1.56
6	0	0	0.03	0	0	0	0	0	0	0	0.84	0.53	0.69	2.09
7	0.22	0.38	0	0	0	0	0	0	0	0.06	0.28	0.66	0.84	2.44
8	0	0.03	0	0	0	0	0	0	0.19	0	0.28	0.44	0.22	1.16
9	0	0.03	0	0	0	0	0	0.06	0	0	0.94	0.81	0.50	2.34
10	0.09	0.41	0	0	0	0	0.03	0	0	0	0.41	0.59	0.84	2.38
11	0.03	0	0	0	0	0	0	0	0	0	0	0.63	0.13	0.78
12	0	0	0	0	0	0	0	0	0	0	0	0	0.09	0.09
13	0	0.25	0	0	0	0	0	0	0	0	0.22	0.25	0	0.72
	0.44	1.28	0.16	0	0.19	0.13	0.03	0.16	0.22	0.06	6.38	7.41	6.25	23

Figure 15.3 Average Adjacency Matrix for the Entire Data Set

From this matrix the location of the concept in the collective map can be derived. Summing the rows and columns of this average adjacency matrix does this. The sum of each row gives the generalised outdegree for each concept. The generalised outdegree for a concept is the average number of other concepts that are effected by that concept. The sum of each column gives the generalised indegree. The generalised indegree for a concept is the number of concepts that influence that concept.

This matrix can also be used to derive a cognitive map for the group with each link weighted by the average number of links (*see* Bougon *et al* 1977: 610; Ford and Hegarty 1984: 285). The next step is to identify the location of each concept in the collective map. Figure 15.4 is the weighted collective map for the entire data set. It is the graphical representation of Figure 15.3. In this figure, all links are included. The bold lines represent links that were agreed to exist by a quarter or more of the managers in the sample.

[SEE THE END OF THE CHAPTER]

Figure 15.4 Weighted Collective Map for the Entire Data Set

Ford and Hegarty (1984) take this analysis one step further by comparing the generalised indegrees and outdegrees for two sets of maps: practising managers and MBA students. They show differences in generalised indegrees and outdegrees for each group and differences in the ranking of variables. Following this approach, it may be useful to compare the generalised indegrees and outdegrees between managers of high and low performing branches. Before this can be done it is important to discuss how the managers' performance will be evaluated.

Performance

80% of my PMP [performance] is the financials.

The measure of performance used in this study was derived from the organisation's measures of the branches' financial performance. The organisation assesses the managers' performance almost exclusively on this measure.

The financial performance is divided into several categories. For each category, the manager and their area manager negotiate a growth target. The manager's performance is then calculated as a percentage of this target. If their overall total in the category decreases then this percentage is negative. If they achieve the target, they score 100. Between 0 and 100 indicates an increase below target. A value of over 100 indicates an increase above target.

$$\text{performance}_{ij} = 100 \times \frac{\Delta\text{total}_{ij}}{\text{target}_{ij}}$$

where i = the performance category (lending or funding)
j = the individual manager

The targets are assumed to incorporate a wide range of factors including controlling for vagaries in the location, size and customer base of the branches. More importantly they are the quantitative measure used by the organisation and, while their external validity may be questioned, their importance to the manager is extremely high.

The Performance Categories

Data was available for four performance categories. However two of these categories were extremely volatile, showing high variance and range of results. Specifically, the variance exceeded the mean in both cases. They were also newer categories to the organisation's operations. The remaining two categories represent what is traditionally considered to be the core business of the organisation. These categories loosely reflect the raw materials coming in (funding) and the level of sales (lending).

Combining the Categories

The managers in this study are drawn from four geographic areas, each managed by a different area manager. The area manager negotiates the targets for each branch with the manager of the branch. Differences in the mean and variance were apparent between the areas. This suggests that the area managers were inconsistent in the way targets were negotiated. To control for this inconsistency, a branch's performance in each category was normalised to the mean and variance of the branches in their area in that category.

$$\text{performance}_j = \sum_i \left(\frac{\text{performance}_{ij} - \overline{X}_{ik}}{\sigma_{ik}} \right)$$

where i = performance category (lending or funding)
j = the manager
k = the area that the manager is in
$\overline{X}_{ik}$ = the mean performance in category i for area k
σ_{ik} = the standard deviation of performance in category i for area k

The categories were combined by summing the normalised Z-Scores. For the ANOVA the managers were ranked on the basis of the Z-Scores and divided into three groups of equal size indicating low medium and high performers. The summed Z-Scores were used as the dependant variable in the regression equations.

Structural Analysis

The first two analyses look at the various indices of the structure of the cognitive map and related them to the performance measures. The two techniques used here are ANOVA and Regression.

ANOVA

An ANOVA is a statistical technique for comparing groups of data. The basic hypothesis tested is that at least one of the groups has a significantly different mean from the other groups. A standard ANOVA assumes that the data is normally distributed and all groups have the same variance.

Groups

The first step is to identify the groups for the ANOVA analysis. To do this the managers were ranked based on their branch's performance and split into three equally sized groups of high, medium, and low performing branches. The means of the variables were compared between these groups.

Variables

The variables tested represent the structural characteristics of the managers' cognitive maps. These variables are the number of concepts, the number of links, the density of the map, the number of heads, and the number of tails. A more complex measure in the form of centrality was used. The centrality for each concept in a manager's map was calculated. For each manager the mean, maximum, and minimum centrality of the concepts in their map were used. The raw data is shown in Table 15.1.

Table 15.1 Cognitive Map Variables and Performance

	Managers in Low Performing Branches	Managers in Medium Performing Branches	Managers in High Performing Branches
Number of Heads	1.9	2.6	3.0
Number of Tails	8.0	8.1	8.2
Number of Links	25.2	22.8	18.6
Number of Concepts Used	12.9	12.3	11.8
True Density	1.9	1.9	1.6
Mean Centrality	7.0	6.6	6.1
Maximum Centrality	10.2	9.3	8.8
Minimum Centrality	5.0	4.5	4.0

A simple ANOVA divides two measures of variance by one another. If the groups are statistically identical, these two measures should be equal and the test statistic would be 1. The significance of the test statistic is found by comparing it to the F distribution. The *p value* is the probability that this value would occur within the F-Distribution given the number of observations and variables involved (degrees of freedom).

This test assumes that the data is normally distributed and that the variances of each group are equal. A cursory look at the data suggests that this is not the case: the variances are quite different. This suggestion was confirmed by the Levene test for homogeneity of variance. The result indicates the significance of the differences between the variances of the distributions, which makes the ANOVA result unreliable.

An alternative test is the Kruskal-Wallis ANOVA. This is a non-parametric test that ranks the variables and compares the rankings of each group. With ten observations in each group, this comparison takes the form of a χ^2 test with the null hypothesis that the distribution of rankings in each group is the same. This test is more conservative and less sensitive to small numbers of observations, data that is not normally distributed and unequal variances between groups.

Table 15.2 shows the variable, the direction of the relationship, and the *p values* for each of these statistical tests. If the direction of the relationship is positive then the high performing group has a higher mean than the low performing group. A negative indicates that the high performing group has a lower mean on this dimension than the low performing group.

This table shows significant differences in the distributions of the number of concepts used, the number of links, and mean centrality (all at the 5% level). The number of heads, number of tails, and minimum centrality do not vary significantly between the performance groups. True density is significant at the 10% level. These results are significant using either test. Mean centrality is significant at the 10% level using the more conservative Kruskal-Wallis test and not significant in a traditional ANOVA. In all cases, the significant differences are negatively related to performance. This suggests that more sparse maps are associated with high performance. The managers in higher performing branches had cognitive maps that contained fewer links and concepts. The basic pattern revealed by these findings is that the two most important considerations are the number of concepts in the map and some sense of how these concepts are related to one another.

Table 15.2 ANOVA P-Values

	Direction	ANOVA	Kruskal-Wallis
Number of Heads	+	0.164	0.181
Number of Tails	+	0.969	0.935
Number of Links	–	0.021	0.029
Number of Concepts Used	–	0.022[1]	0.010
True Density	–	0.090	0.098
Mean Centrality	–	0.105	0.079
Maximum Centrality	–	0.034	0.039
Minimum Centrality	–	0.210	0.161

The next step is to look at combining the data into a model associating the structural features of the maps to the managers' performance. Using the information gained in the ANOVA, a regression model is most appropriate.

Regression

Regression operates on the principle that one variable is determined by, or dependent on one or more other independent variables. Mathematically, the dependant variable is a function of the independent variables. Linear regression, the most common form, assumes that the dependant variable is a function of the each of the independent variables multiplied by a co-efficient (β_x) with a constant added.

The first important issue to consider is which variables to include in the equation. The preceding ANOVA analysis suggests several candidates. The most likely values to be important in a regression equation are those that demonstrate significant differences between high and low performing groups of managers. The second indicator is a simple correlation between the independent and dependent variables. In a regression involving a single independent variable, the correlation coefficient is the square root of the R^2: the amount of variance explained by the regression.

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[1] Levene test $p = 0.016$. In all other cases $p > 0.10$

Correlation also indicates the first constraint of a regression equation. Regression assumes that the independent variables are not related to one another. This is termed collinearity. The simplest indicator of this is a correlation between two independent variables. Table 15.3 shows the correlations between all of the candidate variables for this regression.

Table 15.3 Correlations between Structural Characteristics of the Cognitive Maps and Performance

[SEE THE END OF THE CHAPTER]

The number of observations is the second constraint. A simple rule of thumb is for each independent variable there should be ten observations. A total data set of thirty observations limits the number of independent variables that can be sensibly included to three.

The dependant variable in this regression is the performance measure used throughout this analysis. The performance variable is used in raw form instead of using ranks or the performance groups from ANOVA analysis (*see pp* 171 for the formula used).

The candidates for the independent variables are the variables that are shown to be significant in the ANOVA analysis. The next step is to select three of these that are both highly correlated with performance and not highly correlated with one another.

The first variable considered is the number of concepts used. This variable is the most consistently related to performance in all of the tests used. It is also less highly correlated with all other values than the other variables.

The second variable to include is some indication of the number of links in the map. This is indicated by the number of links, the true density of the map, and the centrality scores being significantly related to performance. Several combinations of one or two of these measures were tried along with the number of concepts used. Finally, the true density was selected. It is less highly correlated with the number of concepts than the other indicators of the number of concepts.

One measure of collinearity is the tolerance. This is the amount of variance of a given variable explained by variations in the other variables in the regression. A value of 1 indicates that the variable is completely unrelated to all others in the equation. As the tolerance approaches 0 it is increasingly explained by other variables in the equation. In a model with two variables, the tolerance for each variable is equal. In this case, they are both 0.96. All other combinations of variables resulted in lower tolerances, suggesting higher collinearity.

A second indicator of the usefulness of a model is the R^2 value. This is the amount of variation in the dependant variable accounted for by changes in the independent variables. R^2, by definition, will increase as more variables are added to the equation. The equation used here has an adjusted R^2 of 0.33, which is as high as any two variable models and only slightly lower than three variable models. Given the problems of collinearity already discussed the higher R^2 values in three variable models are highly suspect – they are likely to be a product of the correlation between the dependent variables rather than a meaningful result.

The final test of the model as a whole is an ANOVA that tests the statistical significance of the model. In this case the $F = 8.15$ ($p = 0.001$) indicating that the model accounts for a significant amount of variance in the dependant variable.

The next stage is to test the coefficients of each variable in the model. This involves calculating the standard error of the coefficient and conducting a T-Test to see if the coefficient is significantly different from 0. A coefficient of 0 would indicate that there is no significant relationship between the independent and dependant variable. In this case, both of the coefficients are significant at the 5% level.

Table 15.4 Regression Co-Efficients

	β	T	p
Number of Concepts Used	-0.65	-2.72	0.011
True Density	-1.34	-2.35	0.026
Constant	10.47	3.56	0.001

This equation reinforces the finding from the ANOVA that the managers with higher performance described cognitive maps containing both fewer concepts and fewer links per concept. These two measures are independent of one another and, together, account for 33% of the variation in the performance outcomes.

This analysis has provided an overview of the relationships between the structural characteristics of the manager's cognitive map and performance. This analysis has found that the managers of higher performing branches had fewer concepts and relationships in their maps. A suggested interpretation of this is that these managers have more focus in their maps and are not distracted by other issues. This issue is discussed in more detail on pages 184-185.

Group Maps

The analysis thus far is limited in its capacity to further investigate this conclusion. It is also a very limited operationalisation of the connectionist model of cognition. The next step is to increase the richness of the data included in this analysis. The purpose is to further clarify the differences between the high and low performing managers.

To do this, the main source used is Bougon *et al*'s (1977) approach to analysing the cause maps of the members of the Utrech Jazz Orchestra. This produces generalised indegrees and outdegrees. Ford and Hegarty (1984) used this approach to compare two groups of managers by comparing the generalised indegrees and outdegrees for each group. This approach is applied to comparing the cognitive maps of three performance groups already described.

A scatter diagram plotting the generalised indegree against the generalised outdegree can be produced. This analysis was conducted for the overall data set and repeated for each of the three performance groups from the preceding analysis (*see pp* 169). Table 15.5 contains the generalised indegree and outdegrees and the ranking of the concepts for each group. Figures 15.5, 15.6, 15.7, and 15.8 show the scatter plots of indegrees *vs* outdegrees for the overall data set and each of the three performance groups.

Table 15.5 Generalised Indegrees and Outdegrees: Raw Scores and Ranks

[SEE THE END OF THE CHAPTER]

[SEE THE END OF THE CHAPTER]

Figure 15.5 Scattergram of Indegrees and Outdegrees for the Entire Data Set

[SEE THE END OF THE CHAPTER]

Figure 15.6 Scattergram of Indegrees and Outdegrees for High Performing Managers

[SEE THE END OF THE CHAPTER]

Figure 15.7 Scattergram of Indegrees and Outdegrees for Medium Performing Managers

[SEE THE END OF THE CHAPTER]

Figure 15.8 Scattergram of Indegrees and Outdegrees for Low Performing Managers

One of the most notable things about these plots is the separation of the three outcome variables (staff satisfaction, customer satisfaction, and financial performance) from the other ten factors. This pattern is what would be expected: goals or objectives are influenced by a large number of factors (high indegrees) and influence a small number of factors (low outdegrees). Ranking the variables by their indegree scores indicates the relative position of the variables in the flow of causality (Bougon *et al* 1977). Outcomes or goals should fall late in this flow. However, this result was largely determined by the approach taken to the interview. The managers were first asked to identify the factors that lead to each of these outcomes and subsequently asked to identify relationships amongst the other variables.

The main purpose of this analysis is to compare the performance groups using indegree *vs* outdegree plots. Before this can be done, one more issue needs to be addressed. The raw data in Table 15.6 shows that the generalised indegrees and outdegrees are higher for the lower performing group. This is a consequence of the greater density of the lower performing maps: the sum of generalised indegrees should be equal to the mean number of links for that performance group. While this piece of information is important, its impact has already been confirmed. It is necessary to ensure that any variation identified in the location of concepts is not simply due to this factor.

To control for the differences in density, each value from the list was scaled by dividing it by the highest value in that list. So the scaled generalised indegree for the high performing managers of "having capable and knowledgeable staff" is 0.106. The next step was to consider the direction of the change on each dimension for each variable. This is shown in Table 15.6.

Table 15.6 Change in Generalised Indegrees and Outdegrees between Performance Groups

	Low → Medium		Medium→ High		Overall	
Concept	In	Out	In	Out	In	Out
Having capable and knowledgeable staff	-	0	+	0	?	00
Having high levels of staff morale and motivation	-	-	-	+	--	?
Having the right number of staff	+	+	+	-	++	?
Having a good location for the branch	0	-	0	-	00	--
Having a favourable customer mix	-	-	-	0	--	-
Having a well-equipped and laid-out branch	0	+	-	-	-	?
Managing staff performance well	0	+	0	-	00	?
High levels of competition	-	-	0	-	-	--
Having a good mix of products	+	-	0	-	+	--
Providing leadership to the branch	+	+	0	+	+	++
Achieving high levels of customer satisfaction	+	-	-	+	?	?
Achieving good financial performance	0	-	0	0	00	-
Having satisfied employees	-	+	-	0	--	+

The first thing to look for in this table is the consistency of the changes in terms of the direction of the changes between the low and medium and the medium and high groups. The third column of this table indicates this by a double sign (++, --, or 00).

Figure 15.9 shows the shifts of the three outcome variables: achieving high levels of customer satisfaction; achieving good financial performance; and having satisfied employees. Here we see that achieving financial performance stays in the same place in terms of indegrees and has no consistent changes in terms of outdegrees. It is the factor that the managers have the most influence over, or the ultimate consequence of their role. Alone this tells us relatively little. Two features are important with respect to these three concepts.

[SEE THE END OF THE CHAPTER]

Figure 15.9 Scaled Generalised Indegrees and Outdegrees for Performance Outcomes

The first is the change in the importance of staff satisfaction. For the managers of low performing branches, it is the second most important concept; for the medium performing group it swaps place with customer satisfaction, slightly decreasing in indegrees. For the manager of high performing branches, staff satisfaction decreases in indegrees dramatically.

The second feature that is apparent is the increase in the distance between financial performance and the other outcome variables in the higher performing managers. A squared Euclidean distance measure was used to compare the distance between financial performance and the next closest variable in each group of concepts. This measure is effectively the linear distance between the two concepts in a two dimensional space.

Table 15.7 Squared Euclidean Distance between Financial Performance and the Next Closest Performance Outcome

	High	Medium	Low
Raw Data	1.84	0.64	0.64
Scaled Data	0.44	0.19	0.15

Table 15.7 shows that using either measure, financial performance was much more distant from the next closest concept than for the low and medium performing managers. These findings indicate that the higher performing managers are far more focused on their financial performance. They also suggest that they place relatively less emphasis on their staff's well being and enjoyment of their work.

[SEE THE END OF THE CHAPTER]

Figure 15.10 Scaled Generalised Indegrees and Outdegrees for Leadership and Staff Related Issues

Figure 15.10 shows having capable and knowledgeable staff; staff morale and motivation; staff numbers; and leadership. The importance of staff morale and motivation decreases, reinforcing the suggested interpretation of the decrease in the importance of staff satisfaction. Staff morale and motivation is seen as being a less influenced factor by the managers. Staff numbers becomes slightly more under the span of the manager's control, although the changes are small. Having capable and knowledgeable staff stays in the same place in terms of outdegrees. The managers consistently rate it as the most influential concept. The most notable change here is the increase in the influence ascribed to leadership. It moves from the least influential of these four concepts (ranked 6th equal overall) for the low performers to joining the knowledge and ability of the staff as the most influential for high performers. High performing managers felt that leadership had relatively more influence on the outcomes than low performing managers did.

[SEE THE END OF THE CHAPTER]

Figure 15.11 Scaled Generalised Indegrees and Outdegrees for Location, Competition and Products

Figure 15.11 shows three variables all consistently decrease in terms of outdegrees for higher performing managers: 'Having a good location for the branch'; 'High levels of competition'; and 'Having a good mix of products'. These three variables are all factors that the managers' acknowledged in the interviews as being largely outside their direct control. The consistent decrease in outdegrees indicates that for the higher performing managers these factors were given less influence in their cognitive map. The most dramatic shift is in terms of the product mix. This moves from being ranked 2nd by the low performers to being ranked 6th equal by the medium and high performers.

Discussion

These results are indicative of several trends in the differences between managers of high and low performing branches in terms of the managers' cognitive maps. These trends can be summarised as six findings:

1. High levels of similarity between the maps.
2. The cognitive maps of managers of higher performing branches contained fewer links and concepts than the cognitive maps of managers of lower performing branches.
3. Managers of higher performing branches are more focused on financial performance than managers of lower performing branches are.
4. Managers of higher performing branches place relatively less emphasis on their staff than managers of lower performing branches do.
5. Managers of higher performing branches attribute less influence on performance to factors they consider to be outside their control than managers of lower performing branches do.
6. Managers of higher performing branches attribute greater influence on performance to their leadership of the branch than managers of lower performing branches do.

These points represent the basic findings of this study. They form the structure of the discussion and interpretation of this data.

Similarity

To explore the differences between the managers' cognitive maps, eight variables were analysed to identify differences between high medium and low performing groups. These ANOVA were conducted using both standard and non-parametric (Kruskal-Wallis) approaches. Of these sixteen tests, six were significant at the 5% level, and one at the 1% level. This represents three of the eight variables.

A similar result is found when comparing generalised indegrees and outdegrees of the concepts in the managers' cognitive maps for high medium and low performing groups. Of the 13 concepts, seven showed either no change or an inconsistent change. The remaining six only changed on one dimension.

Both of these pieces of data suggest that similarity rather than difference is the dominant characteristic of these cognitive maps. Thirty-two managers were interviewed and the results indicate a limited variety. This similarity seems most sensibly attributed to the organisation. All of the managers, through belonging to one organisation, tend towards a common way of understanding their role and the context within which they enact this role. This is reinforced by the structures of the organisation; procedures and policies of the organisation; interaction between the managers; the generally long tenure of the managers; and the similarity of the managers' backgrounds. Some of the mechanisms by which this similarity may have occurred are discussed in Chapter Seventeen.

In a study surveying a wider range of managers, Jenkins and Johnson (1997: S88) found that the "characteristics which differentiate between performance are far more specific than assumed" in the original propositions for their investigation. In the light of their finding, the fact that performance differences do not show up strongly in the general structural characteristics of the cognitive maps is not that surprising.

Despite this similarity, some distinct differences existed. These differences are taken to be idiosyncrasies of the individual managers that are related to their performance.

Sparsity

The managers of high performing branches had, on average, fewer links and concepts in their cognitive maps. This result is, to a large extent, counter-intuitive. Weick's (1979a) ideas on requisite variety created the expectation that higher performing managers would have richer maps. These richer maps would allow them to understand and manage the complex environment more effectively (Eden *et al* 1992). Other studies have found results consistent with Weick's ideas (*eg* Laukkanen 1994).

This result suggests two possible interpretations. The first interpretation is that the manager's environment may be relatively simple. Consequently, the managers who include too many concepts are over-complicating their job. If the environment is simple, it may be either because the external environment is simple or because the organisation's structures, processes and practices prevent the managers from having to deal with the complexity. In either case, the manager does not need to worry about this complexity. The branches of managers who do worry about the complexity tend have lower performance.

The second interpretation is focus. Irrespective of the nature of the environment, the higher performing managers may be more focused on the few things that are really important for managing their branch. This focus means that the managers' maps lead to more intentional action (Weick 1987a, 1990b). This action leads to higher performance. If this interpretation is correct, then the remaining findings from the analysis of generalised indegrees and outdegrees suggest certain specific differences in the focus of managers in higher performing branches over managers in lower performing branches.

Financial Performance Focused

Managers of higher performing branches were more clearly focused on achieving financial performance. This finding is suggested by the lower numbers of both links and concepts in the cognitive maps of managers from the higher performing group of branches identified in the ANOVA analysis. This data is not sufficient to make that conclusion alone. However, it is reinforced by the analysis of generalised indegrees for managers of high and low performing branches. The main data point being considered here is the increase in the distance between financial performance and the next highest performance measure. This distance is at least double in the cognitive maps of managers from higher performing branches compared to managers from either medium or low performing branches.

The Role and Importance of Staff

The second difference is the importance of the staff in the branch. There is a consistent trend showing decreasing generalised indegrees for both staff morale and motivation (Figure 15.10) and staff satisfaction (Figure 15.9) as the performance increases. This means that the cognitive maps of managers in higher performing branches have fewer concepts that effect the staff related variables. This is interpreted as an extension of the previous finding. Not only are the managers of higher performing branches more focused on financial performance, but they are also less concerned with the factors that effect the staff.

Both of these findings are a little counter-intuitive. Most organisation behaviour literature is premised on the idea that the performance of an organisation is based on the management of the staff. While simple manifestations of this, in terms of a relationship between staff satisfaction and performance, has never produced clear results, the general direction has remained unchanged.

Locus of Control

Three variables show a decreasing generalised indegree in the cognitive maps of managers from higher performing branches: competition, location and product mix (Figure 15.11). This is most dramatically illustrated in terms of the ranking of the product mix. For managers of low performing branches, it is the second most influential concept; for managers of high performing branches, it is ranked sixth equal. This means that the managers of high performing branches are according these variables relatively less influence than the managers of low performing branches.

One further piece of evidence, gathered in the interviews, directs the interpretation of this finding. The managers generally felt that these concepts, to varying degrees, were outside of their control. They were factors that effected performance but that the managers were largely unable to influence. The higher performing managers have accorded a lower influence to these factors suggesting that they focus their efforts more on factors that they do control. This is consistent with other findings regarding locus of control (*eg* Clapham and Schwenk 1991).

Leadership and Attribution

The final finding was that leadership dramatically increased in terms of outdegrees in the cognitive maps of managers from higher performing branches (Figure 15.10). For managers from low performing branches, it was ranked sixth equal; managers from high performing branches rated it, along with capable and knowledgeable staff as the most influential concept in the map.

Two interpretations can extend from this finding. The first is that the managers in higher performing branches place more emphasis on the leadership in the branch. They consciously attend to the providing this leadership to the branch. Consequently, the performance of their branch is higher. Figure 15.12 pictures this causal flow.

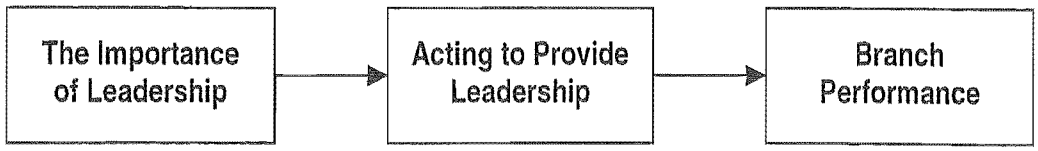


Figure 15.12 Leadership Causes Performance

An alternative explanation is derived from Meindl (1990; Meindl, Ehrlich and Dukerich 1985). The basic argument these papers present is that leadership may be used as an explanation for complex phenomena, such as organisational performance. As such high branch performance leads to the attribution of good leadership, while low branch performance leads to the attribution of poor leadership. In this case, the managers of higher performing branches attribute their branch's performance to their leadership, while managers in lower performing branches attribute this result to other factors most notably the product mix. The manager's actions are not necessarily related to performance (*see* Pfeffer 1981), however this performance leads to the attribution of importance to leadership in the branch. The causal flow for this argument is shown in Figure 15.13.

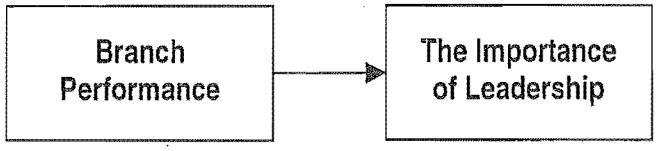


Figure 15.13 Performance Causes Leadership

In this model, branch performance is caused by factors outside the manager's control. In cases where branch performance is high, leadership is used as an explanatory variable, accounting for branch performance. The underlying relationship is the reverse. Managers in high performing branches use leadership as an explanation for high performance.

Contextualising the Findings

As with any study the findings are limited in some ways. To understand the findings from any study, it is necessary to understand the context within which the findings were gathered. The two contexts that need to be considered are empirical and theoretical.

Empirical Context

The small sample size and the nature of the data preclude robust statistical tests of these findings. More specifically the binary nature of the raw data and the fact that the three performance groups each consists of only ten managers means that the variance is difficult to calculate and that it will be very large. Without a reliable estimate of the population variance, it is not possible to test these conclusions statistically. Therefore, it is not possible to state to what extent these findings can be generalised beyond the managers in this study.

The second limitation derives from the single site of this study. The findings may be generally true within the organisation, but taking them beyond this setting is likely to have uncertain implications. The structure of the organisation, the expectations that they have for their managers, or they way in which the organisation evaluates its managers' performance may make it more effective for the manager to place relatively more emphasis on financial performance. Whether this relationship, and the others identified, remains valid outside this organisation has not been tested here.

Both of these limitations are inherent in the original intention of this study. The intention was not to generalise the findings to a population. The findings are best interpreted as a set of propositions: potential relationships that have some empirical support. Further support is required to confidently generalise about these findings.

The third limitation is more serious. The original research question, the raw data and the conclusions all refer to individual managers. The majority of the analyses rely on comparing groups of managers – the high, medium and low performance groups. This is true of the ANOVA and generalised indegree and outdegree analyses.

This limitation is defended by the purpose of this investigation coupled with a caution regarding the findings. The purpose of this investigation was to take the data and, as much as possible, work out what is going on in the data. A series of other analyses, not reported here, did not answer the research questions. This is consistent with Jenkins and Johnson's (1997) attempt to answer a similar question. Like them, the approach here was to explore the data using different methods to try to tease some sense out of it. The caution that must go with these findings is that they are propositions. The ideas concluded from this investigation provide some interesting areas and ways in which the cognition-performance relationship can be explored in the future. That is the ideal output from an exploratory study.

The final limitation is one that applies to any cognitive structure. Using and cognitive structure implies assumptions about the way people think. It is also obvious, from empirical evidence, that there are different thinking styles (*eg* Hales and Allison 1994; Cowan 1991). It seems likely that abstract cognitive structures such as cognitive maps and cognitive scripts would be suited to representing the way some people think better than others. In simple terms, not everyone thinks in terms of concepts and links. If this is true, then the differences between cognitive maps may be representing some more subtle differences between the managers apart from their thinking about performance drivers. However, research into managerial cognition is still in infancy. At this stage, any analysis, even if clouded by this uncertainty makes some contribution to understanding management.

Theoretical Context

The definition of cognition was in terms of relationships between constructs (*see pp* 22, 62). As such this can be seen as a representation of cognitive structure. This model is consistent with the emphasis placed on cognitive structures by the bulk of cognitive science approaches. However, it did not place much emphasis on the content of these structures or on the processes that these structures are involved in.

The lack of emphasis on the content of these cognitive structures is consistent with the connectionist way of knowing cognition. More specifically, the meaning of a concept in an individual's cognitive structure is determined by the location of the concept in their cognitive map. In this study, this was operationalised through the generalised indegrees and outdegrees.

Excluding content from this study was a decision made at the theoretical level. At this level both connectionist and more content driven models are competing with one another. There is currently insufficient evidence to suggest that either is superior to the other – each approach emphasises different features and characteristics of cognition and possesses particular strengths and weaknesses. Applying a different model may lead to different conclusions.

The second aspect of the theoretical context is of more concern. The differences between the connectionist and content driven models of cognition both share their emphasis on the processes of cognition albeit conceived in different ways. The cognitive maps used here are relatively insensitive to the processual differences in the managers' cognition. The processes are seen to simultaneously create the content and structure of cognition and the same content and structure shape these processes.

A third theoretical concern is best phrased in terms of attribution theory. One of the largest changes in the generalised outdegrees of the cognitive maps was in terms the leadership in the branch. Higher performing managers gave leadership a more prominent role in their cognitive maps, with greater influence. This could well be an example of attribution. Meindl *et al* (1985) argue that concepts such as performance are a consequence of extremely complex processes. There is a tendency for people to simplify their understanding of these processes by attributing performance to single causal variables such as leadership.

Future Research

The ideas presented here are best understood as propositions. The six findings from the empirical study all suggest hypotheses that can be tested using both cognitive mapping techniques and other methods. These can be considered as both general propositions regarding the relationship between managerial cognition and performance and some specific findings from this data.

General Propositions

It is my belief that the first two findings – similarity between the cognitive maps and sparsity of high performing manager's maps – are a product of the organisation rather than general laws (*see pp* 188). So, in addition to testing their generalisability, it would also be interesting to identify the conditions under which each applies. The first of these findings suggests a variety of questions, such as:

1. What sort of organisations generate high levels of similarity between their managers? What are the mechanisms by which this occurs?
2. Under what conditions is similarity between managers beneficial to an organisation? Under what conditions is it detrimental?

The second finding draws on the ideas of cognitive complexity. This also suggests further questions, such as:

1. Do cognitive maps reflect cognitive complexity?
2. Under what conditions is cognitive complexity beneficial to a manager? Under what conditions is it detrimental?

Specific Propositions

The findings of this study can be restated as propositions. As with the first two findings, they can be tested for generalisability leading, ideally, to an understanding of the conditions under which they apply and their effect on different types of organisations. The propositions are:

1. That managers of higher performing organisations are more focused on financial performance than managers of lower performing organisations.
2. That managers of higher performing organisations place relatively less importance on staff morale and satisfaction than managers of lower performing organisations.

3a. That managers of higher performing organisations pay more attention to factors they can control than managers of lower performing organisations

3b. Managers of higher performing organisations pay less attention to factors that are outside their control than managers of lower performing organisations.

4. That managers of higher performing organisations are more likely to attribute their organisation's performance to leadership than managers of lower performing organisations.

Table 15.3 Correlations between Structural Characteristics of the Cognitive Maps and Performance

	Heads	Tails	Number of Links	Number of Concepts	Density	Mean Centrality	Max Centrality	Min Centrality	Performance
Heads	1								
Tails	0.11	1							
Number of Links	-0.42*	-0.19	1						
Number of Concepts	-0.72	-0.09	0.49**	1					
Density	-0.23	-0.21	0.95***	0.21	1				
Mean Centrality	-0.43*	-0.02	0.90***	0.53**	0.83***	1			
Max Centrality	-0.69***	0.07	0.74***	0.71***	0.58**	0.88***	1		
Min Centrality	-0.41*	-0.01	0.67***	0.36	0.62*	0.85***	0.78***	1	
Performance	0.40*	0.04	-0.56**	-0.50*	-0.45*	-0.43*	-0.51**	-0.33	1

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 15.5 Generalised Indegrees and Outdegrees: Raw Scores and Ranks

	Overall				High Performance				Medium Performance				Low Performance			
	Indegree		Outdegree		Indegree		Outdegree		Indegree		Outdegree		Indegree		Outdegree	
	Score	*Rank*	*Score*	*Rank*	*Score*	*Rank*	*Score*	*Rank*	*Score*	*Rank*	*Score*	*Rank*	*Score*	*Rank*	*Score*	*Rank*
Having capable and knowledgeable staff	0.44	5	2.75	1	0.7	5	2.4	1.5	0.3	5.5	2.8	1	0.4	5	3.0	1
Having high levels of staff morale and motivation	1.28	4	2.47	2	0.9	4	2.2	3	1.1	4	2.5	4.5	1.8	4	2.8	3
Having the right number of staff	0.16	8.5	2.38	4	0.3	6	1.9	5	0.2	8	2.7	2	0.0	11.5	2.4	5
Having a good location for the branch	0.00	13	1.53	9	0.0	12	1.0	9	0.0	12.5	1.6	8	0.0	11.5	1.9	9
Having a favourable customer mix	0.19	7	1.56	8	0.0	12	1.2	8	0.2	8	1.4	9	0.3	6.5	2.0	8
Having a well-equipped and laid-out branch	0.13	10	2.09	7	0.0	12	1.7	6.5	0.2	8	2.4	6.5	0.2	8	2.2	6.5
Managing staff performance well	0.03	12	2.44	3	0.1	9	2.1	4	0.0	12.5	2.6	3	0.0	11.5	2.5	4
High levels of competition	0.16	8.5	1.16	10	0.1	9	0.7	11.5	0.1	10.5	1.1	10	0.3	6.5	1.6	10
Having a good mix of products	0.22	6	2.34	6	0.3	6	1.7	6.5	0.3	5.5	2.4	6.5	0.1	9	2.9	2
Providing leadership to the branch	0.06	11	2.38	4	0.1	9	2.4	1.5	0.1	10.5	2.5	4.5	0.0	11.5	2.2	6.5
Achieving high levels of customer satisfaction	6.38	2	0.78	11	5.1	2	0.9	10	7.0	2	0.5	12	7.0	3	0.9	11
Achieving good financial performance	7.34	1	0.09	13	6.6	1	0.0	13	7.2	1	0.0	13	7.9	1	0.3	13
Having satisfied employees	6.31	3	0.72	12	4.7	3	0.7	11.5	6.5	3	0.7	11	7.4	2	0.7	12

Figure 15.4 Weighted Collective Map for the Entire Data Set

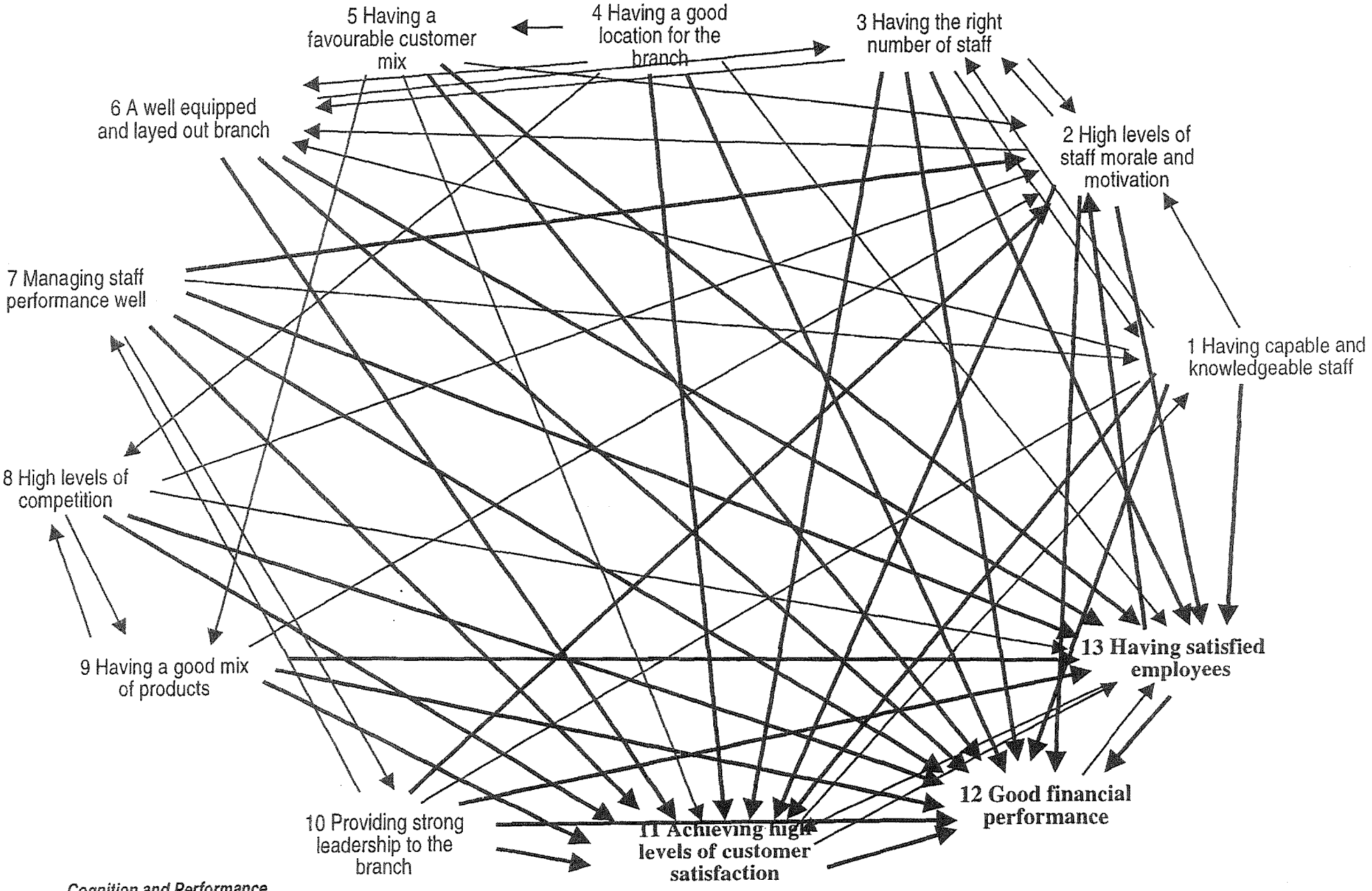


Figure 15.5 Scattergram of Indegrees and Outdegrees for the Entire Data Set

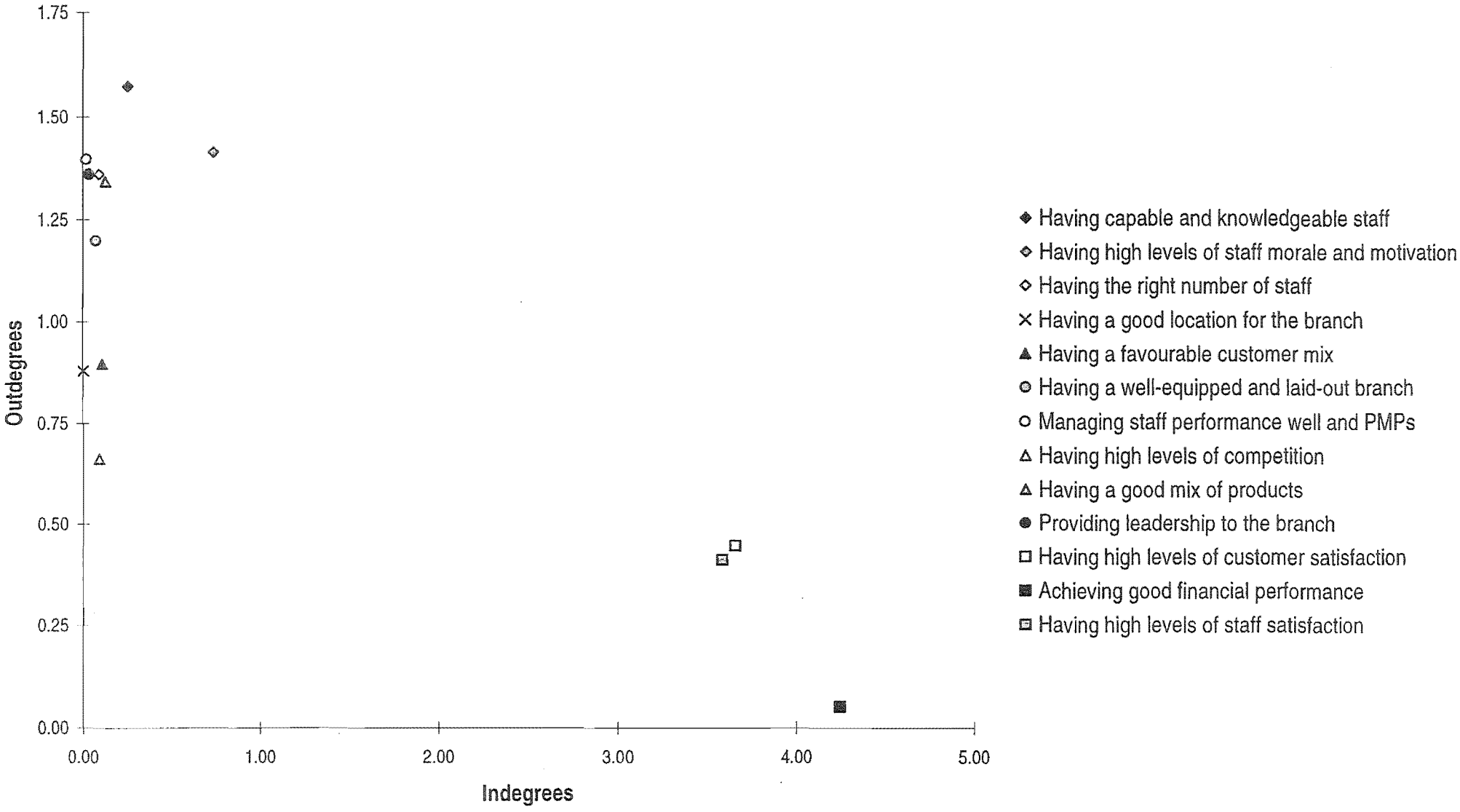


Figure 15.6 Scattergram of Indegrees and Outdegrees for High Performing Managers

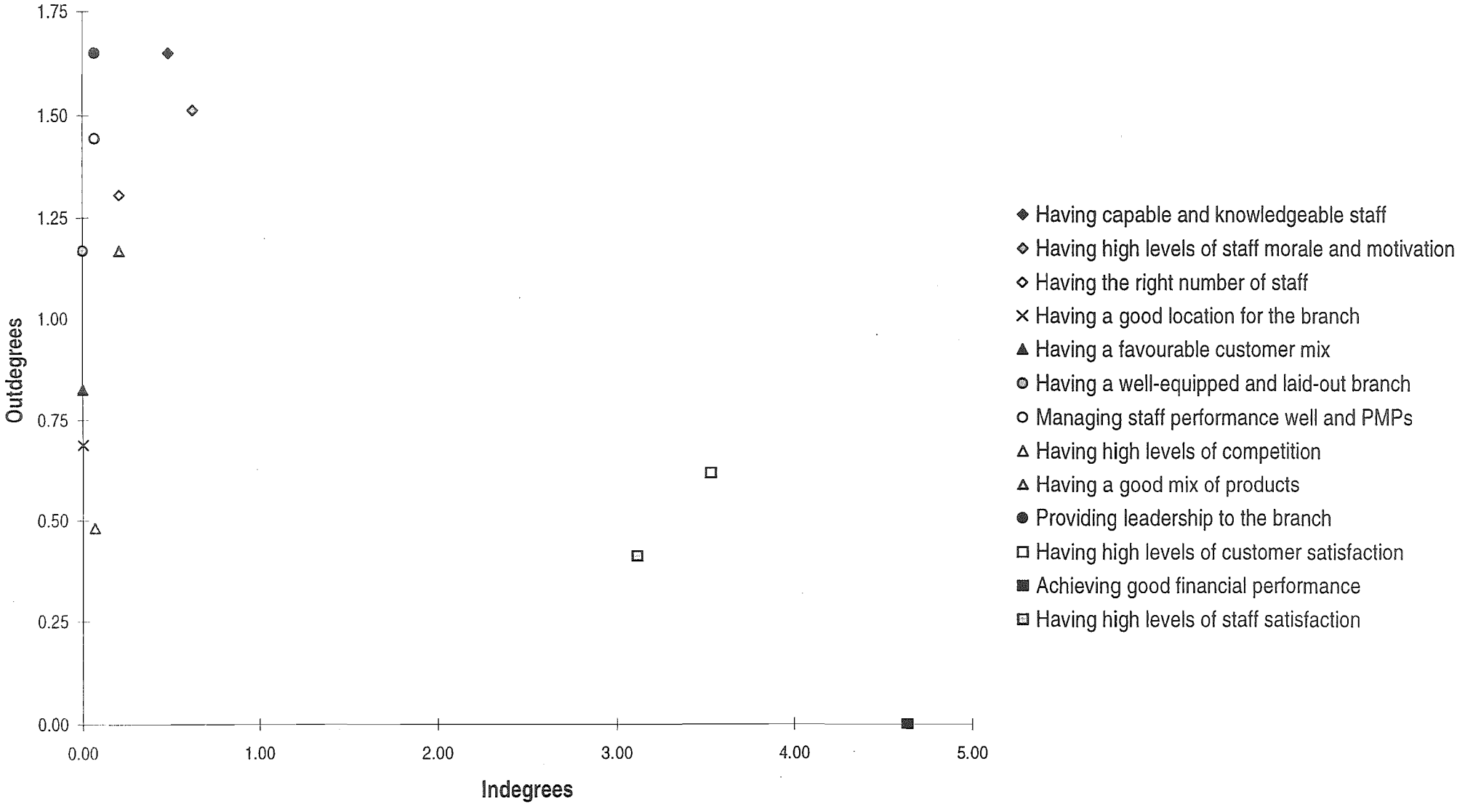


Figure 15.7 Scattergram of Indegrees and Outdegrees for Medium Performing Managers

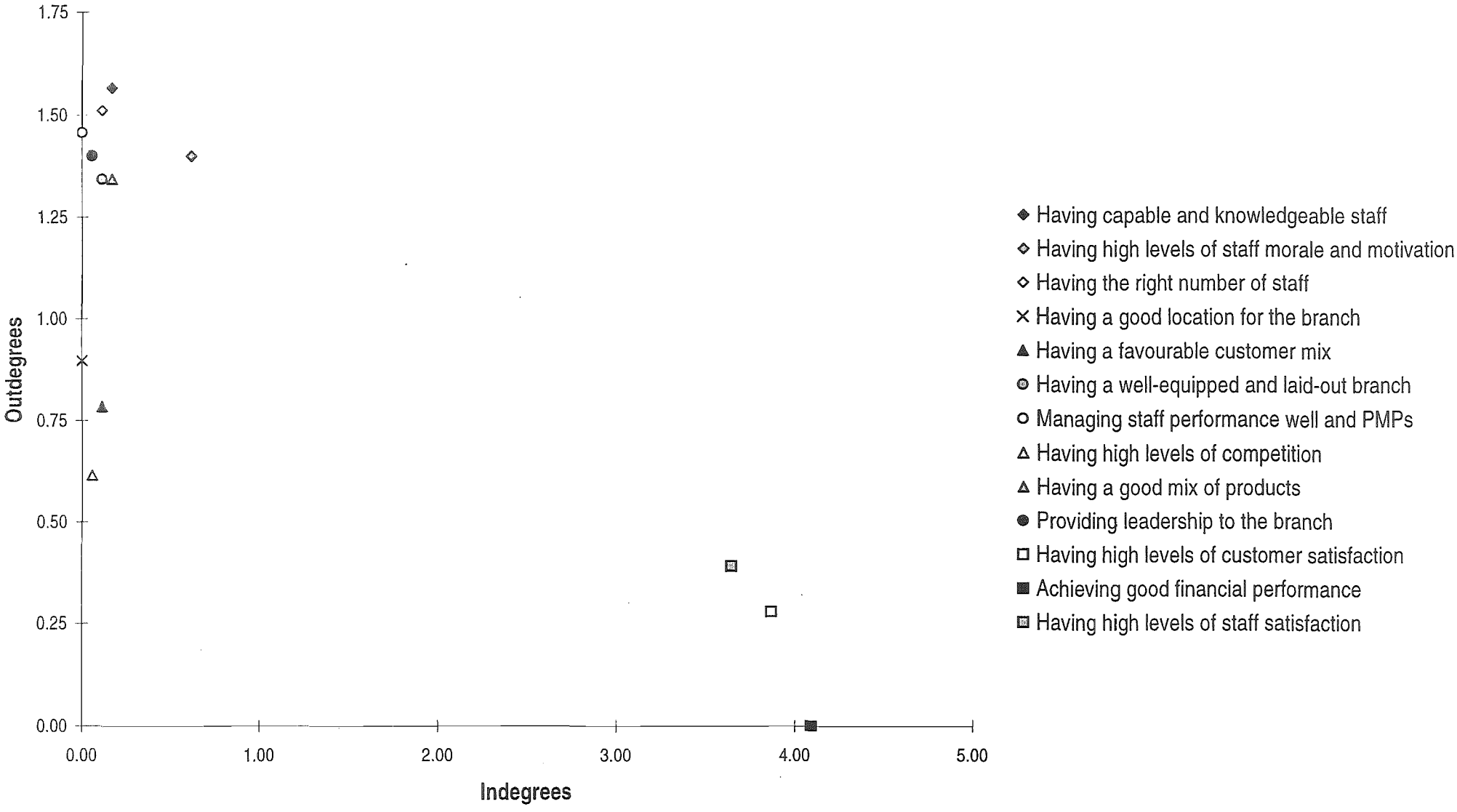


Figure 15.8 Scattergram of Indegrees and Outdegrees for Low Performing Managers

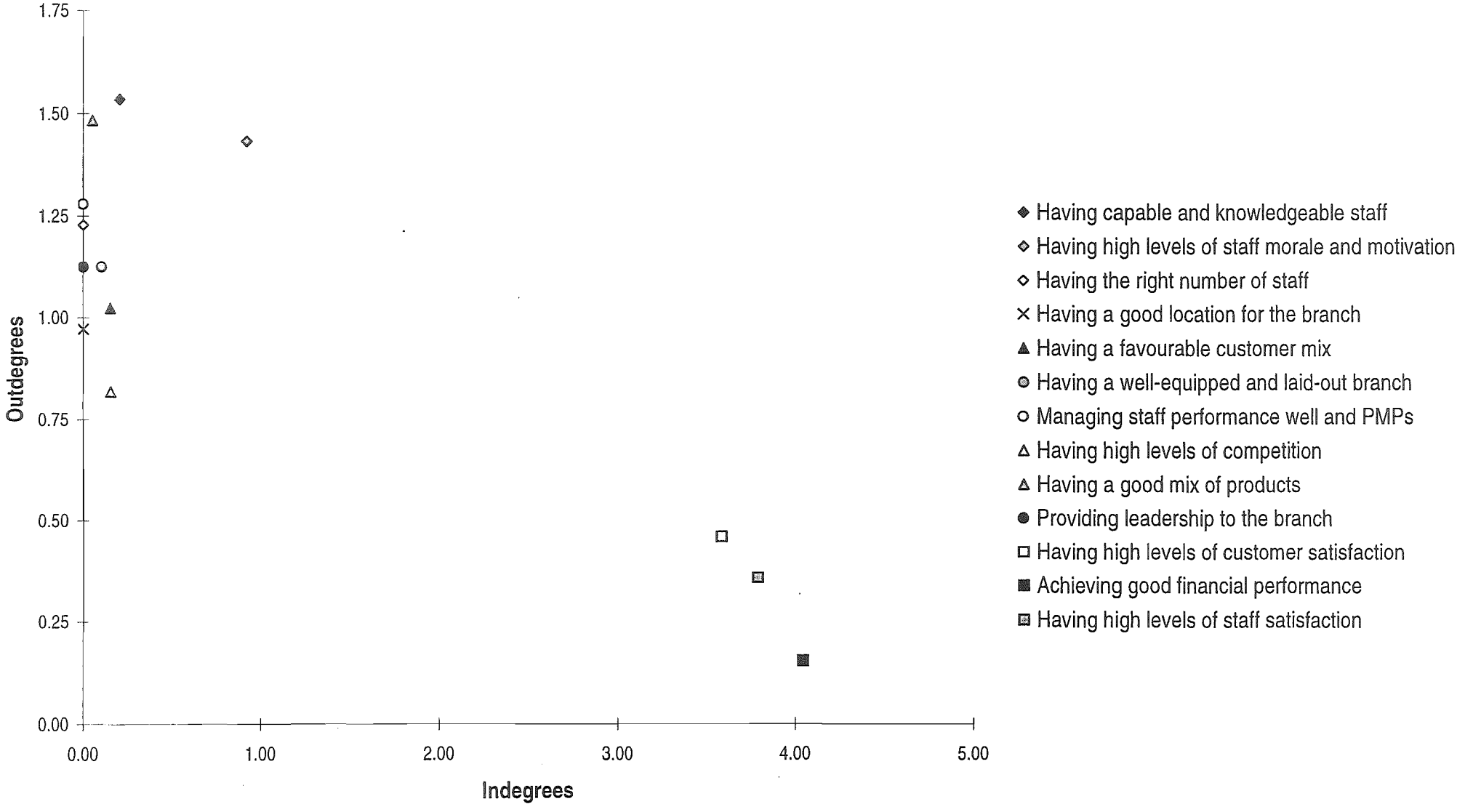


Figure 15.9 Scaled Generalised Indegrees and Outdegrees for Performance Outcomes

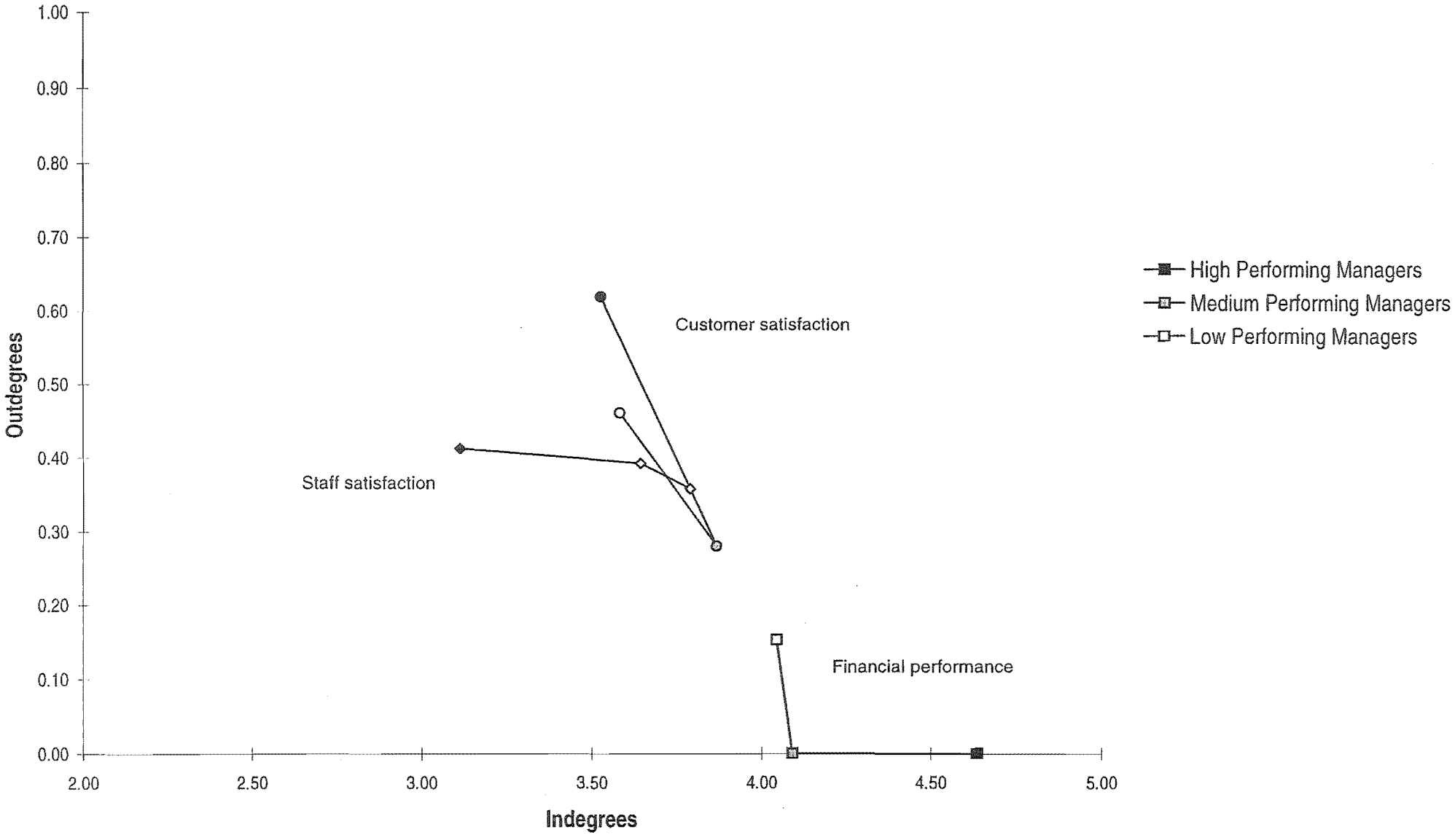


Figure 15.10 Scaled Generalised Indegrees and Outdegrees for Leadership and Staff Related Issues

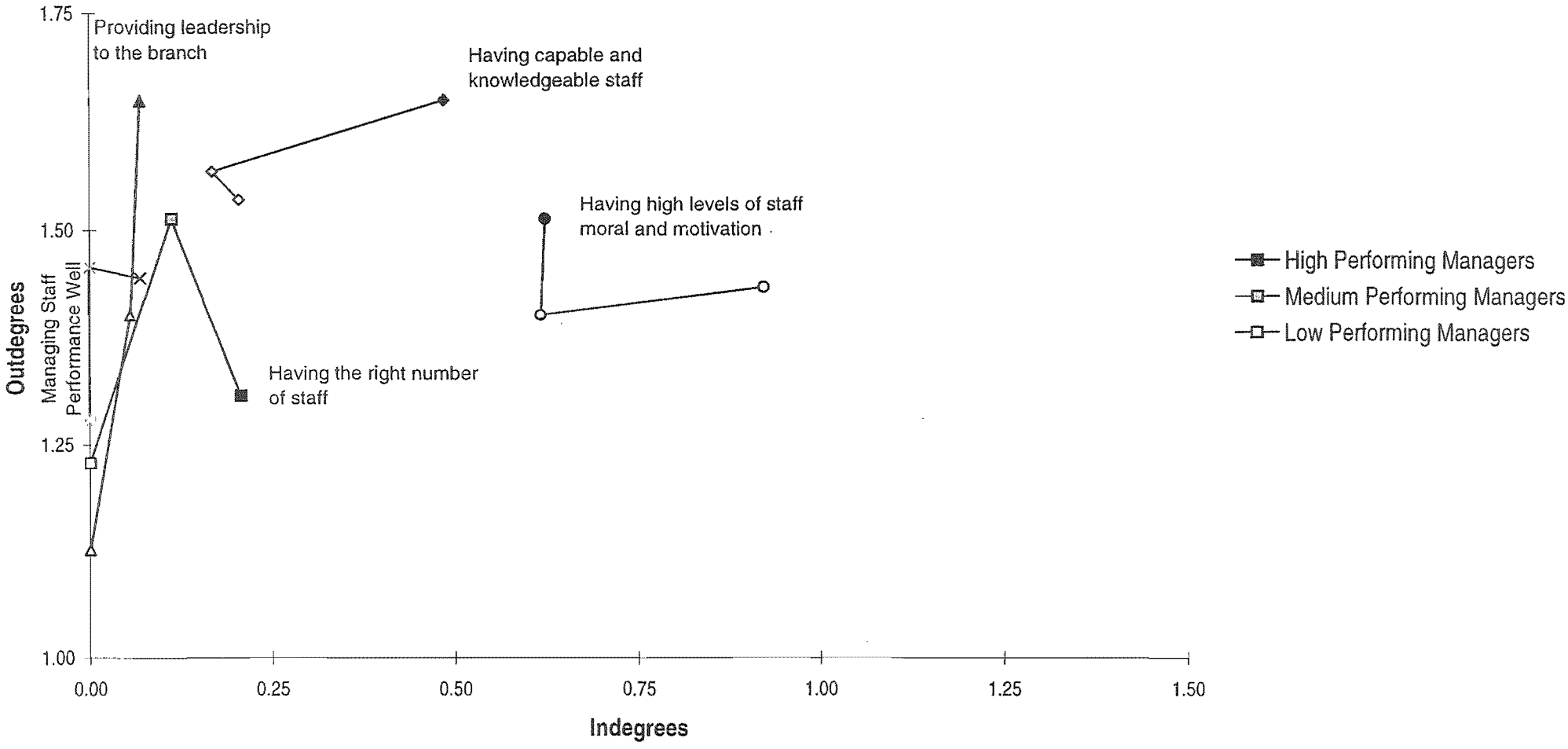
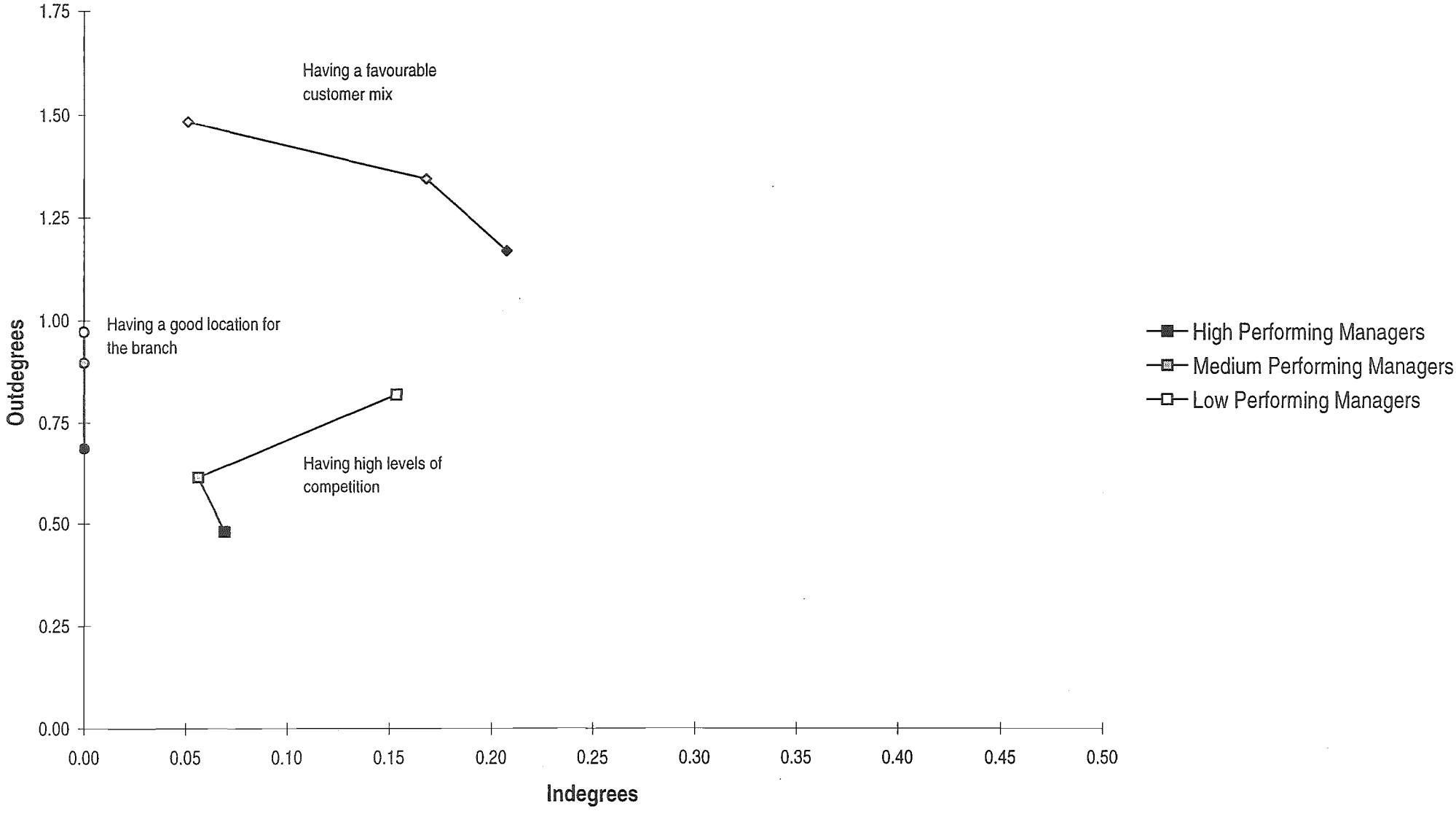


Figure 15.11 Scaled Generalised Indegrees and Outdegrees for Location, Competition and Products



Chapter Sixteen

Managing Poor Performance

This thesis is exploring the ways in which a manager's thinking is related to their performance. These managers work in organisations. Performance is used as a context to uncover the managers' thinking. In Section One, management, cognition, performance and the organisation were introduced as the key areas of interest for this thesis. The discussion of these issues culminated in the question, "How does the manager's cognition effect their performance?" Each of these areas was developed at a theoretical level. The conclusion of Section Two divided the original research question into two questions. This chapter seeks to answer the second of these questions, "What part does the manager's cognitive script play in their management of staff performance?"

This chapter endeavours to understand the manager's cognition in the context of the organisation. Instead of exploring a causal relationship between cognition and performance, it explores the ways in which the manager's cognition is a part of the organising processes that socially construct the organisation. The key issues identified in Chapter Two are used: organisation is performed; cognition is a part of that performance; the managers are important actors in the organisation; managing performance is a context in which the creation of the organisation can be modelled.

Performance Management as a Domain

The management of performance is used as the domain within which the managers' cognition is explored. Performance management has been linked to both managerial cognition and the social construction of management and organisation. In this study, the management of staff performance was an issue that was of obvious importance to the managers. Managing staff performance raises the issue of performance appraisal – how the performance of the staff is assessed (Quaid 1993)

The simplest link between performance appraisal and the organisation is to consider performance appraisal as a mechanism that attempts to standardise and control the behaviour of staff in an organisation. By standardising the behaviour of individuals, their behaviour becomes more predictable to others. This standardised behaviour leads to greater stability in organising processes.

In Chapter Eight, three studies that illustrated the use of performance appraisal as a site of social construction were introduced (Quaid 1993; Townley 1993, 1997). Performance appraisal is a way of making aspects individual's behaviour in the organisation manageable by making them subject to the appraisal process (Townley 1993). The manager is then responsible for these aspects, known as the individual's performance. This allows organisations to justify hierarchy in organisations (Quaid 1993). Together these processes contribute to the existence of management in organisations. As Townley (1993: 235-236) explained:

> Appraisal illustrates a technology in the constituting of managing. It is an example of the operation of power/knowledge, rendering aspects of existence thinkable, calculable, and thus manageable. ...Appraisal illustrates how knowledge of the individual and the work performed articulates the managerial role as a directional activity. ...Minute organizational procedures contribute to the transformation of the mode of government in organizations.

Previous explorations of cognition in organisations have used performance appraisal as the context for their study (*eg* Gioia and Sims 1986; Gioia *et al* 1989; Foti and Lord 1987; Borman 1987). These studies have found that both managers and staff have cognitive models they use that influence their behaviour in the performance appraisal process. Anticipating this research, Gioia and Poole commented that:

> Performance appraisals (Feldman 1981) appear to involve script-based understanding and behaviour. Both managers and subordinates are likely to have cognitively structured expectations about the interactive events or scenes that occur during the performance appraisal interview, particularly for scenes dealing with evaluation and goal setting (Gioia and Poole 1984: 455).

Within the general area of managing staff performance there is the more specific problem of managing poor performance. This is how managers deal with a subordinate who is performing below a certain standard or level of expectations. The reason why poor performance was an issue is discussed later in this chapter. It is within the domain of managing poor performance that this chapter seeks to answer the question, "What part does the manager's cognitive script play in their management of staff performance?"

This chapter provides an answer to this research question. The first part of this chapter describes the process by which the answer was identified. The second part describes the cognitive script itself. The third part discusses the script in the context of the management of poor performance. Finally, these ideas are brought together in a discussion. This chapter draws upon ideas presented in the theory and method sections. In particular, the theory relies on the model of cognition and the organisation presented in Chapter Seven. Cognition, in the form of a cognitive script, draws upon the information regarding cognitive scripts in Chapter Six. Taking these ideas, the first task in this chapter is to establish the link between the data and the managers' scripts.

The Data and Analysis

This section describes the process by which the cognitive scripts were identified and analysed in this investigation. This draws on the techniques introduced in Chapter Twelve for identifying and understanding the manager's accounts. It begins by emphasising the link between a narrative and a script. It then describes the techniques by which the narrative was identified and the script derived from this narrative.

Narratives and Scripts

In Chapter Twelve, the idea of identifying narratives from interview conversations was presented (Kvale 1996). A narrative is a story told by the interviewee (Kvale 1996; Mishler 1985). In this case, the narrative is a shared story, extracted from the manager's diverse accounts (Kvale 1996). It describes some portion of their experience as a manager. In this study, the narratives analysed here provide the managers' descriptions of how they manage an underperforming staff member. Contained within this story is the meaning that the individual associates with their experience (Mishler 1985).

There is also a line of thought that associates narratives with cognitive structures. The idea is that when an individual tells a story (their narrative or discourse) they structure this story. The structure for the story, and the meaning associated with it, originates with the individual's cognitive structures (van Dijk 1993; Graesser *et al* 1993; Mishler 1985). The particular form of cognitive structure often linked to stories is the cognitive script (Mandler 1984; Martin 1982). Where cognitive maps emphasise relationships between concepts, cognitive scripts emphasise behaviour in given situations (*see* Chapter Six). In particular Martin (1982) claims that scripts are abstract themes that allow us to interpret stories in organisational settings. She argues:

> A script is *not* the conceptual equivalent of a story. Instead, an organizational story has a script embedded in it. A script is the essential core, that is, the skeleton that makes the organizational story more than just a string of unique details. ...the key to understanding the relationship between scripts and organizational stories is that a script is the essential core which remains, after the details given to a specific incident are stripped away (Martin 1982: 284; *original emphasis*).

Finding the Script

The identification of the cognitive script involves a four stage process of data collection, organisation and analysis. These stages involve the interviews, coding the data, producing the narrative, and checking the stories.

The Interviews

During the course of the interviews, the managers were all asked about how they dealt with a poor performing staff member. Their responses displayed a degree of similarity, suggesting that there was something worth exploring here. The only variation was the amount of detail with which they were able to describe the script.

Coding the Data

All of the first interviews were coded in some detail. There are a wide range of codes covering all of the issues raised by the managers in the course of these interviews. One of the codes was 'Managing Poor Performance.' As this was an issue raised in early the interview process, it appeared in most of the first interviews. Using NUD*IST as a coding tool, it was then possible to retrieve all of the comments from the first interviews regarding the management of poor performance (*see* Richards and Richards 1994).

The coding of the interview data relied on a constant comparative approach. Each interview was coded. Each idea identified in the interview (usually a paragraph) was compared to the existing codes. If the new idea was the same as the existing code, it was added as another example. If the idea was similar, the code was modified or the new idea was added as a sub category. If it was a completely new idea, a new code was developed. This process did not, however, seek to explain the codes or identify the relationships between codes.

Producing the Narrative

This stage was the most complicated and intensive part of this data analysis. It involved taking all of the comments coded as 'managing poor performance' and identifying the narratives within these comments.

This was done, in the first instance, in each interview. Each manager's comments regarding managing poor performance were read and annotated. The key concepts they talked about were coded. Throughout this process, the principles of analytic induction were used. Each new idea was compared against the existing body of concepts. If it was the same as an existing concept, it was included as an example. If it was similar to an existing concept, then the concept was modified to include the new instance. If it was different from any of the concepts, then it was included as a new idea. This process continued until all data had been accounted for. This analysis adopted a far more explanatory approach than the coding of the entire data set. The aim was to explain the process of managing poor performance, including the relationships between the categories identified.

Two levels of categories were identified in this analysis. The first level included the specific techniques used by the managers for managing poor performance. The second level was the abstract level of governing the process. This second level is the cognitive script that specifies way in which the techniques are used.

The results of this analysis were the process for managing poor performance and the techniques for managing poor performance used by the managers. These categories are used in Table 16.1 to demonstrate the extent to which the script was articulated (*see pp* 222).

Checking the Stories

The cognitive scripts developed to this stage are based on the information coded as 'managing poor performance' from the first interviews. The final stage was to check this coding scheme. This involved reviewing the entire interview data set, both first and second interviews, for descriptions of managing poor performance. This led to a count of the manager's comments regarding each of the categories present in the cognitive script. This led to a categorisation of the manager as explicitly describing the script; implicitly describing the script; or not describing the script. In all cases, the comments that had already been analysed lead to the correct categorisation of the manager. In a few instances, the additional data led to more categories within the script being identified by an individual. Overall, the initial conceptualisation was an accurate representation of the information in the interviews.

In addition to this categorisation, the managers' accounts of managing poor performance were all collected in one place. This subset of the data was considerably smaller and more manageable than the overall data set. This richer data set was used to provide the contextualisation of the script in the processes of management and organisation.

The Script for Poor Performance

The analysis of the interview data revealed a consistent pattern in the managers' descriptions for how they managed poor performance. This pattern, present as a structure in the narratives of managing poor performance, is interpreted as a cognitive script. The first question to ask is the general presence of the script: "Do all the managers possess a script for managing poor performance?" And: "What different scripts are present in the data?"

Reviewing the interviews with the managers, it is apparent that not all of the managers articulated the process by which they managed poor performance. All of the managers were asked about how they dealt with an underperforming staff member. Some responded by elucidating a clear set of steps that they followed. A second group provided some steps or stages without fully describing the process that they used. A third group gave no cogent description of how they would deal with managing poor performance.

The second point to notice was that the managers who described a process for managing poor performance all described a similar process. Their comments suggest that the managers who have a script for managing poor performance all draw from a common process for managing poor performance. Managing poor performance involves three stages or scenes: talking to the staff, addressing the problem, and letting the staff perform. These stages were initiated by some antecedent conditions and iterated or terminated based on monitoring the individual's subsequent performance. The managers often stated these three stages very briefly:

> ...you know there's a problem, and you go to the full extent of talking to them, finding out what the problem is and helping them solve it.

In this section, the antecedent conditions that trigger the script, the script itself and variations on the script will be described.

Antecedent Conditions

The managers tended not to clearly articulate the specific issues that they used to initiate the management of poor performance. At the same time, the managers gave the impression that recognising poor performance was relatively unproblematic. It was described as persistent underperformance. The exact nature of the staff member's performance was rarely made explicit. When it was made explicit – usually in the context of discussing other issues – two themes were apparent. Firstly, performance covered a wide range of issues. Secondly, how performance is conceived varied between the managers.

Performance was generally described in a broad sense. Some of the issues included as performance by one manager were:

> ...getting on with your fellow workers. There's the ability to learn the product knowledge questionnaires we give them. ...Are they treating the customer in a professional manner?

How performance was conceived was a second point of variance between the managers. The two main categories were the managers who conceived performance as a process and those who conceived performance as an output. Managers who conceived performance as a process focused on issues such as the staff member's behaviour and competency at their job. Those who conceived performance as an output focused on issues of measuring performance outcomes, usually in terms of sales, absence of errors and similarly quantifiable themes.

> The way [the organisation] is going, with so much more emphasis on measurement of the staff through focus coach sessions and the reintroduction of the PMP process it's going to make it an awful lot clearer whether a staff member is performing or not. What you're going to get away from is the staff member does their job for 12 months, then when it comes time for their annual appraisal, the manager says 'well you're not doing a good job.' If they haven't known they're not doing a good job, then we really have no basis for action. But if that staff member has had their performance measured for every month throughout the year, then they are going to know very well when they are not doing a job that's acceptable.

A Script for Poor Performance

The antecedent conditions are what Shank and Ableson (1977) referred to as a script header. These conditions must be met for the script to be initiated. Once the manager recognises that there is a case of poor performance, they begin enacting their cognitive script for dealing with it. In this case, the script consists of three stages: talking to the staff member, addressing the problem, and letting them perform.

Talking to the Staff

The first stage of managing poor performance described was to discuss the problem with the staff member. This discussion generally consisted of two components: communicating the expectations with the staff members and identifying the reasons for poor performance. Communicating expectations involves letting the staff member know that their performance is unacceptable and what acceptable performance standards are. The articulation of these standards was generally a restatement of standards already communicated to the staff member.

> Getting to the bottom of why it isn't happening, and finding out... Especially if it's a good staff member [that has] slipped. ...Nobody goes bad overnight.

The second component of talking to the staff member is to identify the reasons for their poor performance. The main rationales given by the managers were: (1) most staff are capable of performing well; (2) it is more effective for the organisation to develop its existing staff than to hire new staff; and (3) there are usually reasons for poor performance. There was generally a commitment to the staff so that the first option for the managers was to try to develop the staff member. This meant identifying why they were performing below standard.

> ...discuss [the performance problem with the staff member] and just say that if there are any issues, or actually ask them at the time, if there are any obstacles or any reasons why that has happened, because it could be something deeper than that.

Addressing the Problem

Once the problem has been articulated, communicated and discussed with the staff member, the next scene involves addressing the problem. This is a broad category that refers to how the manager and staff member deal with the problem of poor performance. Specific issues described by the managers focused on their involvement in this process by removing obstacles, providing training, or encouraging the staff member.

The idea of removing obstacles refers to the fact that the poor performance may be a product of things that the manager is able to deal with. In these instances the manager can act directly and thereby assist the individual in improving their performance. This term was used as a general 'catch-all' for how the manager could act to assist the staff member.

The second issue referred to a situation where poor performance was a result of insufficient or ineffective training. In these cases, the individual could receive additional training that focused on the gaps in their knowledge, skills and abilities.

> ...initiate some sort of extra training or whatever so that... I mean a lot of these people have had a hell of a lot of resource poured into them, and it's not beneficial just to boot them out. If you've put that amount of effort into training them to this stage, the idea is to get them to the stage where you want them to. So better training, not better, but more training, perhaps or more specific training helps to get them there.

The final issue assumed that the staff member possessed the knowledge, skills and abilities to perform; that they were not prevented from performing by any factors within the organisation. Therefore, the individual needed to be encouraged to use their capabilities to perform. One sub-theme of this issue was raised by several managers who referred to staff members being confronted by non-work related issues. The initial response to these issues by most managers was to recommend appropriate assistance to the staff member, such as counselling.

> ...what I find works best is not jumping up and down, not beating them around the head, not threatening them but holding their hand, encouragement, recognising when they're doing well, getting on a wavelength where they will be honest with you.

Letting them Perform

Once the performance problem is identified, discussed with the staff member, and addressed by the manager, the final stage is for the staff member to perform. Letting them member perform is a scene in which the manager plays a relatively passive role. The staff member performs most of the action associated with this scene.

> ...they've basically got to get on with it. Then we really left it to [them]. If necessary we'll follow up, or check on [their progress]. Wee problem with [a staff member] and I had to take them aside a couple of days ago and I laid out where they need to improve. And that I want to see all of their [work] for a period of time, to see that it does improve.

Connected to this stage is the monitoring of subsequent performance. Here the manager uses various forms of information to gauge the staff member's performance. This information could consist of (1) the usual staff performance reporting; (2) increased frequency of reporting; and (3) double checking of a staff member's work. This performs a regulating role in the process, deciding whether the script iterates or not. If the staff member's performance is adequate then the script is terminated. If their performance is not adequate then the script iterates. With each iteration, the manager's intervention becomes more forceful, culminating in terminating the staff member's employment.

> I use the analogy of a steam train. It's a big huge cumbersome thing, so it starts moving very, very slowly. So that, to me, is you get the staff member; discuss how they feel about the issues; get them involved. ...then we set expectations about what we want to see happen, try to get some input from the staff member and monitor... stand back and give them some space to get on with it. If they don't respond, then obviously you mention it a bit more firmly, you find if there are any obstacles and sort out part of that. And you gradually take more firm steps if you have to. Most staff will respond when you first point it out to them.

Figure 16.1 shows this script in diagrammatic form. Each stage consists of different specific techniques that the managers claimed to use in managing poor performance. Now that the script has been described, the next step is to identify the variations on the script that were present in the managers' accounts.

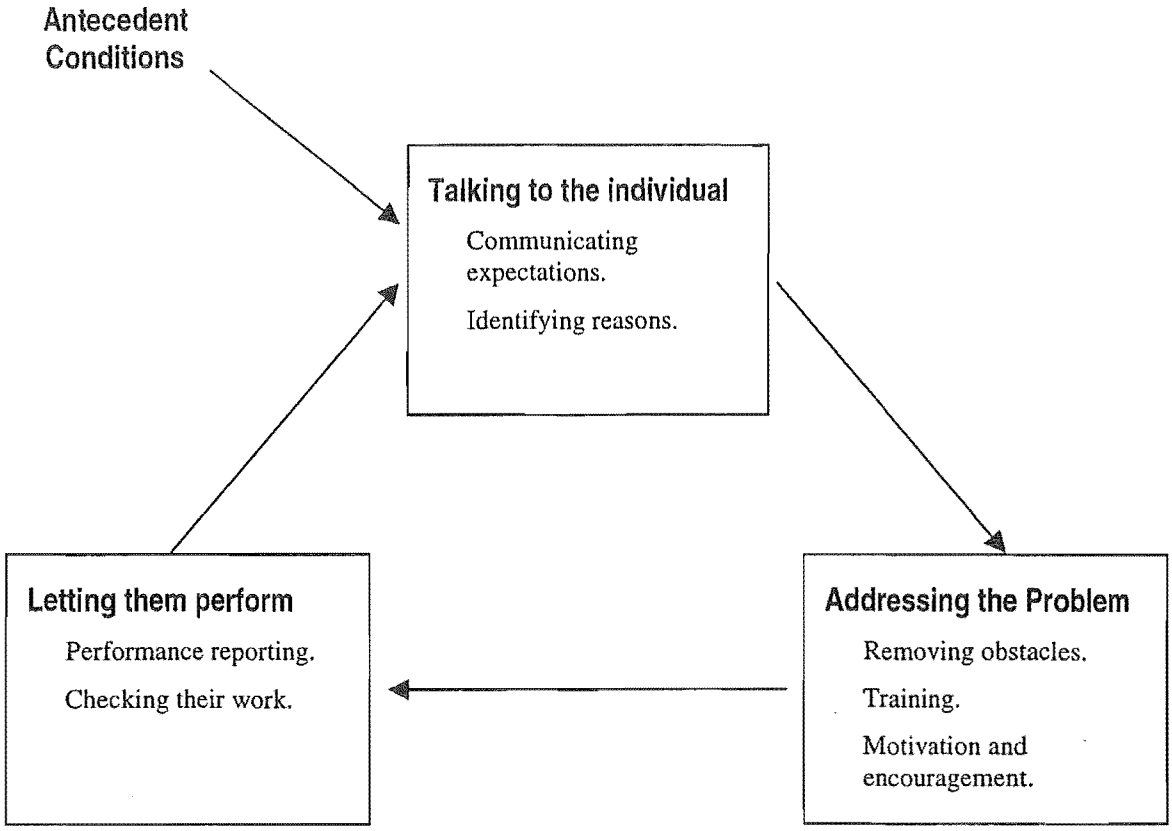


Figure 16.1 A Script for Poor Performance

Variations on the Script

One of the most important findings is that this script was the only one described by the managers for managing poor performance (*cf* Gioia *et al* 1989). As already noted not all of the managers clearly articulated the stages for managing poor performance or described the process at the same level of abstraction. Different managers described different components of this process in greater or lesser detail. Some scenes were left out. Some managers divided scenes into two parts. Despite these variations, none of the managers described anything that was radically different from the script outlined here. Furthermore, this process is an adequate description of the organisation's formal performance management process.

Table 16.1 shows the scenes of the script and the various subcomponents of the cognitive script described in this section. The first row is the number of managers who explicitly described a scene or aspect of the script. These managers had (1) identified that they had a process for managing poor performance and (2) described the particular scene or technique as a part of that process. The second row refers to managers who did not state they had a process for managing poor performance, but described the scene or technique with respect to dealing with poor performance. Excluded are managers who did not articulate the process at all. This table illustrates the general agreement with the basic structure of the cognitive script and the variation apparent in the details of this script.

Table 16.1 Variations in the Articulation of the Script and its Components

[INSERT TABLE ONE ABOUT HERE]

The Script and Managing Poor Performance

In this study a particular aspect of managing the branch is bracketed and used as a domain of inquiry. In this section, the focus is on how the manager's script influences and is influenced by the actions that they talk about as managing poor performance. To explain this several points are made. Firstly, a manager acts in accordance with their script for managing poor performance. Secondly, the manager's script does not fully prescribe the appropriate behaviour in a poor performance situation. Thirdly, a manager interprets the experience they identify as managing poor performance in terms of their script for managing poor performance. Finally, this interpretation modifies the manager's script.

The Script Influences the Manager's Actions

The first point is partially based on evidence from the interviews and partially on a methodological assumption. The evidence from the interviews is that the data that has been interpreted as cognitive scripts was extracted from the managers' responses to being asked how they managed poor performance. The answers from managers who claimed they had managed poor performance were usually in an active voice. They talked about how they had managed poor performance in the past; how they manage poor performance in the present; or how they intended to manage poor performance in the future. This implies that the script was in fact a script for action. For example:

> Stick around, I'll be doing it in an hour. I've always found the best way, if they've already been in, and it's been explained to them where they're perhaps falling down, where we want them to get to and give them our expectations of certain levels we want them to get to. I'll get them in and just say... the easiest way I've found is just to say 'Well, how do you think you're going compared to when we met last time?' And put it on them to say what they think they're at, where they're at.

The manager is describing how he was going to deal with a staff member who was currently performing below expectations. In this case, the individual has already been spoken to regarding their performance. The manager is using their past experience of managing poor performance to describe how they will manage their current incident of poor performance.

This view is also consistent with the definition of a cognitive script as "a schema held in memory that describes events or behaviors (or sequences of events or behaviors) appropriate for a particular context" (Gioia and Poole 1984: 451). It also recalls the dual benefits of scripts: to "enable *understanding* of situations" and to "provide a *guide to behavior* appropriate to those situations" (Gioia and Poole 1984: 451 *original emphasis*). In this case, the script is assumed to play the second of its two roles: guiding behaviour.

This raises the concern described by Argyris and Schön (1978) that what people say (espoused theory) and what they do (theory in use) are different. This mirrors Gioia and Poole's (1984) distinction between cognitive and behavioural scripts. Cognitive scripts are scripts held in the mind; behavioural scripts are the enacting of these scripts. In part, this distinction is a product of psychological training, evidenced by Argyris and Schön's (1978: 7) comment that theories in use must be constructed from observations of behaviour. In this study, the manager's words are treated as a partial reflection of the manager's thinking and their action. While the limitations of this assumption are acknowledged, the insights provided by them are powerful and should not be discarded.

Partial Scripts

The second point is that the scripts that have been described are weak scripts (Gioia and Poole 1984). Strong scripts completely describe the individual's behaviour in a given situation. Weak scripts "are associated with situations in which events are expected, but the order of events is not normative" (Gioia and Poole 1984: 456). In this case, the basic sequence of scenes in the script remains the same but the behaviour within those scenes and the number of iterations are highly variable.

It is evident that the scripts do not completely describe how a manager should act in a situation. This is apparent in two ways.

> I think... Well I see the problem in this branch is that I don't fully understand the procedure for managing poor performance. I don't mean the reporting procedure or talking to the staff member concerned about it, but what's the next step after that? At which point do they get a letter? At which point do they get invited in to have a representative with them? At which point do you have a representative with you, so it can't be misunderstood in a private meeting, what's been said?
>
> *Sure...*
>
> And I know it's in the Human Resources Policy Manual, but reading it and putting it into practice and knowing you've done the correct procedures are two different things.

This comment refers to the fact that any procedures are only partially known. It implies that there is more to implementing policy than is described in the "Human Resources Policy Manual". It implies concepts of tacit knowledge (Polyani 1967) that underpin the practical implementation of the process for managing poor performance. The explicit knowledge, articulated in manuals and training courses, does not completely describe what is required to be done with respect to managing staff.

> ...You've got your annual PMP targets, ...[which] are based around, to a certain degree, they're based around numbers in terms of what they're achieving in sales. And the other part of it is the competencies, and we have a schedule we made up which monitors their competencies, their skills and their knowledge. A two pronged attack.
>
> *... what advantage do you have by using the competencies over just the numbers?*
>
> You're getting a complete picture of the person's performance. You might have a great seller, a person that can really sell. But if they're... obviously they've got some knowledge, but there are other skills there.

This manager was characteristic of all the managers in that they were unable at any stage of the interviews to clearly articulate all of the skills or characteristics required of an effective staff member. At the same time, there is explicit recognition that formal measurement of performance is a partial reflection of the individual that is not sufficient to understand their performance. Again, the manager is unable to fully articulate what makes a good staff member implying that this knowledge contains a tacit component.

Scripts as a Template to Interpret the Situation

The third idea is that cognitive scripts are also used to interpret the manager's experience in a situation where they manage poor performance (Gioia and Poole 1984). This is one of the key propositions of script theory, and schemata theory in general (*eg* Weick 1979a; Starbuck and Milliken 1988; Simon 1990).

In this case, it is evident in the consistency of the responses. The manager's experiences of managing poor performance span a large number of years and people. Each of these experiences is going to be slightly different, a fact which some of the managers acknowledged. The diversity of experience can be summarised in one script. This is not claiming that each manager's experience was consistent with their cognitive script. It is claiming that the manager's diverse stream of experience is described and understood in the terms of this script. This is consistent with schemata theory: people tend to notice information consistent with the schemata and not notice information that deviates from it (Weick 1995a; Lord 1985; Starbuck and Milliken 1988).

Scripts are Modified on the Basis of Managing Poor Performance

The final point is that the scripts are modified by the manager's experience of managing poor performance. In most instances, this modification is a refinement of the existing framework rather than a major revision. The most obvious piece of evidence for this is the relationship observed between both the managers' experience as a manager and the size of the branch.

Table 16.2 shows the managers divided into three groups. The first group is the managers who articulated a script for managing poor performance (explicit script). The second group includes managers who described some of the scenes of the managing poor performance script without fully articulating this as a script (implicit script). The final group includes the managers who did not describe a process for managing poor performance (no script). These three groups were compared on the basis of demographic variables relating to the size of the branch and the manager's experience. Table 16.2 shows the mean values for these variables. The final row shows the p values for ANOVA comparisons of the three groups described.

Table 16.2 ***Branch Demographics and Script Elicitation***

	Tenure (Years)			Number of Staff	
	In the Organisation	As a Manager	In the Current Branch	People	Full Time Equivalent
Explicit Script	23.3	18.1	4.8	19.0	17.3
Implicit Script	21.1	14.2	4.1	12.1	11.0
No Script	19.9	9.4	4.3	11.7	9.1
p Value	.455	.012	.798	.043	.013

This table shows that a manager's tenure as a manager and the number of staff are related to the articulation of the script. A causal explanation for this data would suggest that the managers with greater experience and larger branches have greater familiarity with managing poor performance and have therefore needed to develop a more detailed script to manage this.

Discussion and Conclusion

Performance appraisal is an area in which both cognitive scripts (*eg* Gioia and Poole 1984) and the social construction of the organisation (*eg* Townley 1993) has been implicated. The specific issue relating to managing staff performance discussed here is that of managing poor performance. This was an area that provided some rich data, reflecting many of the things that were going on in the organisation. Of all of the issues discussed in the interviews, this one produced the most consistent, systematic responses.

In this chapter, the idea of cognitive scripts as related to both managing staff performance and narratives was introduced. This information was used to identify the cognitive script for managing poor performance in this organisation. This script was described in some detail, and then its application to the management of poor performance was discussed. The purpose of this final section is to discuss the existence of the cognitive script in more depth.

The cognitive script for managing poor performance is discussed in four ways. Firstly, the importance of common routines to the existence of an organisation is discussed. Secondly, the question of why poor performance was chosen as a focus is addressed. The third and fourth issues both relate to the scrip itself. The third point considers abstract scripts and what the findings here suggest for script acquisition. The final discussion point is to ask why the ideas of cognitive scripts – and cognitive structures in general – are important in organisational contexts.

The Importance of Common Routines

The management of poor performance is a small part of a manager's job. It does not need to involve significant decisions; it does not necessarily involve a lot of the manager's time; it does not usually effect all of the staff. All of these statements are true of the managers studied here. However, managing poor performance is important in at least two ways. Firstly, it is illustrative of how a common routine contributes to the social construction of the organisation (Weick 1993b). Secondly, managing performance can be seen as a fundamentally important part of organisations and management (Townley 1993). The first of these points – how common routines construct organisation – includes a role for cognition that makes it inseparable from the organisation.

Weick (1993b) summed up a lot of his earlier work by arguing that his theory of sensemaking described "small structures with large consequences." He was arguing that sensemaking and commitment "refer to events that have relatively small beginnings" (Weick 1993b: 13). From these small beginnings, these processes enlarge to form organisations. He argues that his approach to organising, and social psychology in general,

> is about small events that enlarge because they are embedded in amplifying causal loops, are acted into networks where they spread (Porac *et al* 1989), become sources that are imitated, resolve important uncertainties at impressionable moments, make discontinuous changes in performance (Chambliss 1989) and so on (Weick 1993b: 34).

What this means is that 'small' events are the things that really make up the organisation. In terms of management, the day-to-day interactions between managers and staff are the basic processes from which the organisation is created. An organising process is interlocked cycles. These cycles are interlocked by individuals performing the same behaviours over and over again (*see* Chapter Seven). Extraordinary behaviours are interesting, but what creates the organisation is the same things being done over and over again (Weick 1979a).

Managing staff performance, including poor performance, is one of these common events. The manager is trying to produce from their staff a certain set of behaviours. This behaviour will effect the staff member's interaction with customers and with other staff. By standardising this behaviour, the manager is, in effect contributing to the construction of the organisation.

Why Poor Performance

Why was poor performance chosen as the domain for this analysis? The argument presented so far has demonstrated that managing performance is important to the organisation. However, one of the major factors in selecting poor performance was because it was clearly articulated. The managers were able to describe how they managed it, in varying degrees of detail. Responses for dealing with high performing staff members were usually vague terms, such as "reward and recognise." Some managers provided specific examples of how to do this, but there was far less consistency. This still leaves the question of, "Why was this the case?"

There are several possible reasons. The first is simple: the managers were told how to manage poor performance; they were not told to the same level of detail how to manage high performance. The managers' training included some detailed steps on how to deal with a poor performing staff member.

A second possible reason for this could be that high performance is good from an organisation's perspective. But it is poor performance that determines the baseline for the organisation. Several managers used the phrase, "a chain is only a strong as its weakest link." By this they meant that the performance of their branch was constrained by the worst performing staff member in the branch.

A third reason is that the contexts of high and low performance are different. Should a person consistently underperform the ultimate penalty for that is to terminate the person's employment, raising the legal context for this termination as an issue. This requires that the process by which the poor performance was managed be documented. This suggests that systematising this process is required by the legal context. If a person consistently performs highly, there is no legal requirement that the organisation responds to that in a systematic manner. For this reason, the processes for managing poor performance are more carefully systematised than the processes for managing high performance.

The data gathered and analysed did not reveal which of these three explanations was most consistent with the managers' experiences. All of these explanations received some support from the managers, but in no cases was this support conclusive. It is likely that all three factors were an important part of the explanation.

Abstract Scripts

A cognitive script is a sequence of behaviours appropriate for a familiar situation (Schank and Abelson 1977). They serve to both prescribe behaviour in that situation and to interpret the behaviour of others in the situation. These elements were present in the scripts described in this chapter. An important issue to discuss is the variation in the articulation of these cognitive scripts. This variation meant that the more experienced managers described the process for managing poor performance in greater detail than less experienced managers. One way of understanding this is to refer to abstract scripts.

The pattern of script development and articulation is consistent with Martin's (1982: 288) observation regarding "the impotency of abstract scripts". She refers to the fact that scripts are usually built from concrete experience. The abstract script does not describe what should be done in a given situation. It describes the general stages of the script development.

This idea draws upon Ableson's (1976) differentiation of three types of scripts: episodic, categorical and hypothetical. Episodic scripts are concrete, based on a single incident and involve a detailed description of that incident. Categorical scripts are based on two or more incidents and involve general statements illustrated with specific examples and some details. Hypothetical scripts are abstract, usually based on a large number of incidents and involve general statements with few, if any, details and illustrations. Martin then describes the process of script development:

> An individual first experiences or learns vicariously about a situation. That situation is then remembered at an episodic level of abstraction. As other similar incidents occur, the internal structure of knowledge, that is the script, becomes more abstract, first in categorical then in hypothetical form.

It seemed that managers with more abstract scripts were those that were more experienced with managing poor performance. In some cases, the managers were able to describe aspects of the process for managing poor performance, while stating they had never had to deal with this particular issue. One way of interpreting this result is to look at Gioia and Manz's (1985) idea of vicarious learning of cognitive scripts. Vicarious learning occurs when people learn "through vicarious or symbolic processes as opposed to direct experience" (Gioia and Manz 1985: 528). This means that people learn something without doing it. Gioia and Manz (1985) argued that people acquired cognitive scripts for activities through vicarious processes – such as modelling or training. From this process, they were able to learn aspects of the cognitive script.

Through this process, however, they appeared to primarily learn techniques – concrete actions – that were used in managing poor performance. The managers who articulated the more abstract script were managers who generally had more experience in managing poor performance. At the same time, these managers were able to provide a richer description of the specific actions that they used in performing this. In many cases, the managers drew on a specific example to illustrate their abstract point.

Enacted Scripts

The final issue to discuss is the one of why managers have cognitive scripts. This chapter has shown that the managers do have cognitive scripts. The discussion has argued why managing poor performance is scripted and how the scripts may have developed. The final question is, "Why do managers have cognitive scripts at all?"

The second part of Weick's (1979a) argument regarding the nature of organisations brings cognition into the equation. He argues that organisations consist of people performing essentially the same behaviours over and over again. What allows the people to perform these behaviours is their cognition of the situation. In this chapter is has been argued that the manager knows how to act in an instance of managing staff performance because they have a cognitive script for doing this. It is also assumed that the staff member has a script that is compatible with, but different from, the manager's script (Gioia *et al* 1991). When the manager and the staff member each act out their cognitive scripts for poor performance, they are contributing to the organisation.

To put this in more philosophical terms, the managers – as with all people – experience their job as a continuous stream (Schutz 1967). They break this stream up into smaller chunks that they can then interpret and make sense of (Weick 1979a). The cognitive script is a mechanism that achieves bracketing and interpretation. Different experiences are grouped together as 'managing poor performance.' The cognitive script is used to frame these chunks of experience and to provide meaning for them.

In simple terms, the cognitive scripts are devices by which the manager treats their experience of different events as being of the same thing. This allows them to simplify the process – instead of remembering every instance of managing poor performance, they remember an abstracted script, illustrated by a few examples. Instead of needing to work out for each instance of managing poor performance how to do it, they recall their script and apply it to their current situation (March and Simon 1958; Louis and Sutton 1990; Weick 1995a). This allows the managers to use their 'active' cognition to deal with surprises or non-routine events.

From the organisation's perspective, the cognitive frameworks, such as this cognitive script, allow the consistency of action that is necessary to produce interlocked cycles. This issue – how the manager's cognition is linked to the organisation – is based on the findings here. However, the findings are not conclusive with respect to this and the discussion of cognition and the organisation has been moved to the next chapter.

Table 16.1 Variations in the Articulation of the Script and its Components [1]

	Scene One: Dialogue			Scene Two: Addressing the Problem				Scene Three: Letting them Perform	
	General	Identify reasons	Communicate Expectations[2]	General	Remove Obstacles	Training[3]	Encouragement	General	Reporting[4]
Explicitly Stated	10	9	2	9	3	2	2	6	5
Inferred	4	1	14	2	0	1	2	3	1
Total	14	10	16	11	3	3	4	9	6

---

1 Total sample size 32
Number of Managers mentioning the process of managing poor performance 20
Number of managers explicitly identifying stages in this process 10

2 A large proportion of the references to communicating expectations referred to the more general management of staff performance. The two managers that explicitly mentioned this theme did so in terms of reiterating or clarifying these expectations.

3 Most of the managers referred to issues relating to training in the branches. It was implicated as a problem that was more general than simply related to managing poor performance.

4 General performance reporting, the PMP, is not counted in this category. Only where specific changes to reporting, in response to poor performance, are counted in this category.

Chapter Seventeen

The Script and the Organisation

So far in this thesis, the manager's cognitive map has been related to the performance of their branch and their cognitive script for managing poor performance has been described. This chapter seeks to look at the relationship between a manager's cognition and the organisation in which they manage. Specifically, it is trying to describe the relationship between the processes of organising and managing and the organisation. This relationship is illustrated using data from this study.

To describe this relationship, three theoretical models are drawn on. The first – institutional theory – describes mechanisms by which a collective effects individual members of that collective. This theory shows how the organisation influences the managers' cognitive scripts. The second uses Weick's (1995a) sensemaking framework to describe the social construction of organisations and the role of cognition in this construction. This shows how the managers' cognitive scripts effect the organisation. Finally, Giddens' (1984) structuration theory is used to integrate these two theories into a broad framework. This framework involves the processes by which the organisation and the individual mutually influence one another. Cognition is the medium through which these influences operate.

This argument is abstract. To illustrate it, the managers' cognitive scripts for managing poor performance will be used. These scripts provide some more tangible example of the abstract processes being described here. In this way, the current chapter extends from the previous one. Like the previous chapter, it is attempting to explain the role of cognition in the processes that constitute the organisation. The difference – and the reason for this being a separate chapter – is that this chapter relies more heavily on theoretical ideas and is less well supported by the data collected.

The Organisation and the Script

In Chapter Fifteen, one of the findings was that there was considerable similarity between the managers' cognitive maps. In Chapter Sixteen, it was shown that there was considerable similarity between the managers' cognitive scripts. These two findings suggest that organisational factors influenced this similarity. Interpreting these findings is the purpose of this section. A useful framework for understanding the similarities is provided by institutional theory. DiMaggio and Powell began their piece on institutional theory by asking "why is there such startling homogeneity of organizational forms and practices; we seek to explain homogeneity, not variation" (1983: 148).

This is a thesis about managerial cognition. The use of institutional theory may seem a little out of place in a thesis about managerial cognition. However, DiMaggio and Powell (1991) argue that the importance of cognitive processes in new institutional theory is what differentiates it from the old institutionalism's emphasis on normative elements (*see* Scott 1995; Selznick 1996). Scott's (1995: 66) summary of the cognitive view espoused by the new institutionalists states that:

> Social life is predictable and orderly because of shared role definitions and expectations, the authority of which rests in a shared conception of social reality—a complex of taken-for-granted assumptions—rather than [only] in the promise of rewards and the fear of sanctions.

In this view, the role of cognition is pivotal. The social interaction that underpins new institutional theory is both determined by and interpreted through cognitive beliefs (DiMaggio and Powell 1991).

Using Institutional Theory

Institutional theory argues that organisations adopt practices and forms for reasons other than those assumed by theories of rational choice (Zucker 1987; DiMaggio and Powell 1983; Scott 1995). This means that the way organisations are structured and how they function is not simply a matter of finding the 'best' structure or function. There are other mechanisms at play. The new institutional theory focuses on the mechanisms by which the institution affects the organisational forms adopted within that environment (DiMaggio and Powell 1991). In this chapter, it is argued that the same mechanisms determine how the organisation influences its individual members – including its managers (*see* Figure 17.1).

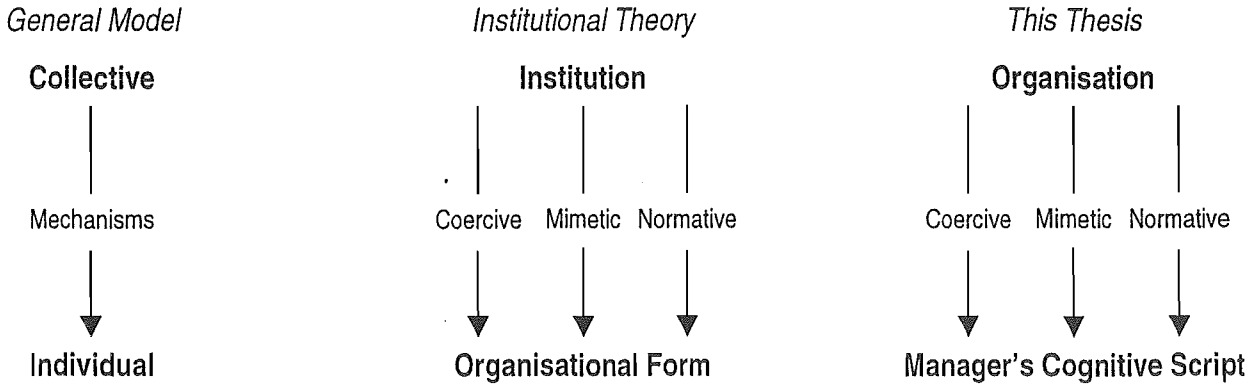


Figure 17.1 Institutional Theory and This Thesis

The main contribution of DiMaggio and Powell's (1983) paper is that they identified specific mechanisms through which an institution affects organisations. These mechanisms – which DiMaggio and Powell (1983) refer to as isomorphic processes – are coercive, mimetic and normative (DiMaggio and Powell 1983; Scott 1995). These three isomorphic processes will be described in more detail, including evidence that they were factors in the similarity between the managers' cognitive scripts in this study.

Coercive Isomorphism

> Coercive isomorphism results from both formal and informal pressures exerted on organizations by other organizations upon which they are dependent and by cultural expectations in the society within which organizations function (DiMaggio and Powell 1983: 150).

Coercive isomorphism operates through forcing the organisations to adopt certain practices and forms. The two forces powering coercive isomorphism are dependence and societal expectations. The actors that impose practices on organisations include the state and government; however, organisations also impose practices and forms on one another (DiMaggio and Powell 1983).

Each of these processes can be illustrated by an example. Firstly, in New Zealand the Companies Act 1993 specifies certain requirements of limited liability companies. Among other things, these requirements effect the organisation's governance structure if they wish the legislative protection offered by limited liability. Secondly, some organisations require that their suppliers to have ISO 9000 certification before they will accept their supply. This effects the practices of these suppliers if they wish to continue to supply to that organisation.

Evidence of Coercive Isomorphism

In this study, the managers are given the structure of the PMP and associated performance reports (*see* Chapter Fourteen). They are expected to complete a PMP for each staff member and use this for the organisation's evaluation of the staff member. An important part of this process in the organisation is the presence of a Human Resources Policy for managing the staff, including poor performers. This Policy, coupled with training, dictated the managers' behaviour.

Why are you using that approach [for managing poor performance] rather than...
Well, because we've been on courses to do this [laugh]. It's been pointing us in that direction. So I guess we've been given tools as far as management has given us the tools to say, 'Hey, I've found this to be quite successful, we want you to start doing this.' So, I guess if it comes to that, we've been directed to this sort of thing, the [organisation] wants it done. We've got one or two manuals out there on how to do it... [indicates a shelf full of manuals].

A second coercive factor is the external, legal need to justify dismissal coupled with the satisfaction of internal protocols and procedures in disciplinary issues. One manager recounted striking these forces:

I got a person down to their last written warning and couldn't sack them. Because they've been in the [organisation] too long. Which is a pathetic excuse. I'm on my second round with the same staff member and [the Human Resources Department] better stand up to what they say they're going to.

Mimetic Isomorphism

> When organizational technologies are poorly understood (March and Olsen 1976), when goals are ambiguous, or when the environment creates symbolic uncertainty, organizations may model themselves on other organizations (DiMaggio and Powell 1983: 151).

DiMaggio and Powell (1983) describe two mechanisms through which mimetic isomorphism operates. The first is the transfer of staff between organisations. The individuals staffing organisations are not fixed; they move from one organisation to another. In doing so they take their knowledge and experience of other methods, which may influence the organisation's practices. When they are faced with a problem, these staff are likely adopt a solution that has been proven to work in the past – possibly in another organisation.

The second form of mimetic isomorphism is more explicit. It involves soliciting the advice of professionals (usually business consultants) that affects the organisation's practices. Organisations, when confronted with a particular context, are likely to model their behaviour on other organisations that they perceive as being successful in that context (DiMaggio and Powell 1983). The popularity of organisational texts such as Peters and Waterman (1982), Kanter (1989), and Hammer and Champy (1993) illustrate this. These books document practices of a group of high performing US companies. These practices were distilled and offered as prescriptions for how to organise and manage by business consultants around the world. While the specific details of these prescriptions may be questioned, the idea of best practices literature is alive and well (*see* Watson and Bargiela-Chiappini 1998). Constantly trying to imitate success is an example of mimetic isomorphism.

Evidence of Mimetic Isomorphism

Mimetic isomorphism was apparent in the full range of the managers' activities in this study. The managers referred to sharing ideas with other branches, usually within their area. This sharing was, in part, to paraphrase one manager, providing a 'solution' to a 'problem' that other managers were now encountering.

> We've had a number of situations where people have actually gone from here, and gone to other branches, or been talking to other colleagues from other branches, and next thing they're introducing [an innovation developed in this branch] into another branch.

Additionally, many of the managers in one area referred to the idea that "we're all one [organisation]," implying both that variation on certain dimensions was unacceptable and that the managers should share their ideas with one another. Because of this, the managers did share ideas with one another. Several of the managers in this area spoke of calling up other managers for advice on an issue.

At an organisational level, the PMP and Coaching processes were designed and introduced by consultants. Consultants provided the training of the managers in these techniques. The similarity between the individual managers' cognitive scripts was a case of mimetic isomorphism effecting the organisation as well as the individuals.

Normative Isomorphism

Normative isomorphism brings notions of values and norms that define what is preferred or desirable and how things should be done (Scott 1995). Normative isomorphism affects organisational practices by creating conformity. Scott (1995: 39) argues that "actors conform not because it serves their self interest, narrowly defined, but because it is expected of them".

DiMaggio and Powell (1983) claim that professionalisation is the most obvious face of normative isomorphism in organisations. Professionals, in an effort to define their work, standardise their performance evidenced by the similarity of professional practices across organisations. Professionals conform to given practices because their profession expects that they will conform. One way that professionalisation is achieved is through standardising training of the professionals.

Evidence of Normative Isomorphism

In the organisation studied, the managers are trained to use the PMP and coaching tools.

> In the past, we've been trained pretty thoroughly in staff management and that sort of thing. I believe that sort of training we've had in the past is beneficial. To me, anyway.

Similarly, the managers were, on average, long serving. No manager had worked for less than 15 years in the organisation, with over half having in excess of 20 years experience. This period of service can be seen as a selection device for management. During this time, the managers are likely to learn the values and practices the organisation associates with good management.

The final piece of evidence indicating normative isomorphism is seen in the managers' insistence on a degree of standardisation of certain aspects. This was apparent in the role expectations within the branch and, most commonly, managers' references to the need for standardised approaches particularly in terms of PMP targets.

> Well, I don't think it boils down to whether you like it or not because I think everyone's got to be consistent. So if the [organisation] does decide that certain career bandings aren't responsible for financial targets, and the PMPs are meant to be consistent across the country to work, well then I have to accept that and really concentrate on competencies and behaviours. ...Because I don't believe I can suddenly say, 'Well, OK, across the rest of the country it's not target driven, but in my branch it sure as hell is going to be.' Because otherwise it lets down the PMP process and total review.

> People doing the same job should be assessed in the same way, whether they're in this branch, or any other branch in [the organisation].

Conclusion

This chapter is describing the relationship between the organisation and the cognition of the managers in that organisation. So far, in this chapter, it has been argued that the organisation exerts influence over the managers' cognition (*see* Figure 17.2). This part of the chapter has demonstrated that the coercive, mimetic, and normative mechanisms described by institutional theory provide a useful framework for describing how this influence operates. This argument has been illustrated using the managers' cognitive scripts for managing poor performance.

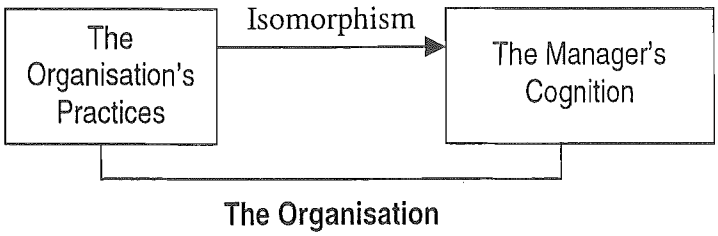


Figure 17.2 The Organisation's Influence on the Managers' Cognition

An important aspect of this discussion is the fact that the 'organisation' has been treated as a reified entity. Based on the arguments presented in Chapter Seven, this treatment is problematic. The next step in this argument is to understand the role of the managers' cognition in the organising processes that create the organisation.

Creating Organisations

This chapter has argued that the organisation influences the managers' cognitive scripts. At the end of the previous chapter it was hinted that the managers' scripts effected the organisation as a whole. That argument will be developed here, showing that the managers' scripts influence the organisation. Describing this influence relies on some evidence from the present study, as well as drawing heavily on a Weick's (1979a; 1995a) theoretical model, presented in Chapter Seven.

In this study, the influence of the manager on the organisation is evident in two ways. The first is that the managers have input to the organisation's processes for managing poor performance. During the period of data collection, the organisation reviewed its performance management process. One of the managers was directly involved in this review committee; members of this committee interviewed other managers. It is assumed that the involvement in this review process would have elicited many of the same comments that were communicated during the interviews with the managers.

The second way is through the managers' acting out of their cognitive scripts. These actions are the actions that create the organisation, through processes of social construction (Berger and Luckmann 1966; Silverman 1971; Weick 1979a). The organisation is neither more nor less than interactions between people: managers' meetings, staff and customer interactions, manager staff interactions and so forth.

However, the simple explanations do not capture the complexity of organisations or management. To capture this complexity, and to explain the influence of the managers' scripts on this organisation, Weick's (1979a, 1995a) ideas on the process view of organising, presented in Chapter Seven are used. These ideas will be discussed in some detail again here and illustrated with some evidence from this study.

The managers rarely articulated a process of social construction with respect to their own behaviour. Some did implicate it with respect to their staff's behaviour.

> ... because, as far as the customer's concerned, the people in sales and enquiries, that's the [organisation]. That's people's perception of [the organisation]. And I guess it will be the same for any other [organisation]. The front line people are your image. That's what they see day in, day out. And if they get the impression that, "Hey, these people don't know anything" or "They don't know what I want them to know" then those people are very quickly going to lose confidence or have no confidence at all. Hence they're going to take their business elsewhere.

The process described in the previous section is one in which the managers act out their cognitive representation of an organisational phenomena then interpret the products of their actions in terms of this cognitive representation. It is a cycle of thought and action that Weick (1995a) refers to as enactment within the broader processes of sensemaking in organisations. Weick (1979a; 1995a) has consistently argued that these processes of thought and action are central to the social construction of the organisation. In very simple terms, when people act on the assumption that an organisation exists this produces evidence supporting the assumption.

In Chapter Seven, Weick's (1979a) model of double interacts and interlocked cycles as the heart of organising was introduced. These concepts can be drawn upon to explain role of the cognitive script in the enactment of the organisation. Double interacts consist of individuals acting and responding to the actions of others. Combining double interacts creates interlocked cycles. Interlocked cycles create the stable patterns of behaviour that are the organisation (Weick 1979a).

Pivotal to the actions of the people involved in the double interact is their beliefs about how they should act, or their cognitive map. It is in this role that the cognitive script is placed. The manager's part in this double interact is influenced by their script for managing poor performance. This was described in some detail in the previous chapter.

It is also assumed that for the staff member whose poor performance is being managed has a script determining their behaviour. For example, some of the managers recognised that – their staff "knew when they had been performing badly." On this second note, Gioia *et al* concluded that:

> Subordinates also seemed to have well developed scripts for the performance appraisal. They rarely initiated or concluded the conversations, interrupted the manager, or initiated new topics. They did actively seek to defend themselves, but always within the bounds of behaviour prescribed by their lower-status position (Gioia *et al* 1991: 521).

The same processes by which the organisation is created also create management (Hosking 1988; Leblebici and Salancik 1989; Knights and Willmott 1992; Watson 1994a). This fundamental link between the manager and the organisation can also be extended to the managers' dependence on societal factors (Knights and Willmott 1992; Watson 1994a; Alvesson and Willmott 1996). This means both that managers are, in addition to their organisational role, are also people who have lives and families outside the organisation (Watson 1994a). Also, managers draw upon power relations in society such as patriarchy and capitalism (Knights and Willmott 1992; Alvesson and Willmott 1996). These societal factors effect how the managers think about their work and how they act in their job.

This chapter has argued that the manager has a script for managing poor performance. This leads to them behaving in certain ways in a situation where they are managing poor performance. The staff also possess a script for this process, which they also enact. When the manager and managed enact their respective scripts, they act, react to the other's actions, and respond to the reactions. This is a double interact, governed by a cognitive script. When this double interact influences another double interact – such as a staff member's interaction with a customer or the manager meeting with other managers – an interlocked cycle is produced. The assemblage of these cycles is the organisation.

This process is an example of the general processes that enact organisation and management. Managers, subordinates, customers and everyone else who deals with an organisation interact with one another. These interactions create the stable patterns of behaviour that we think of as an organisation. According to script theory, a cognitive script determines a person's behaviour in a situation with which they are familiar. The behaviour of the managers in a double interact for managing poor performance is determined by their script for managing poor performance.

This chapter is describing the relationship between the organisation and the cognition of the managers in that organisation. This part of the chapter has argued that the managers' cognition influences the organisation (*see* Figure 17.3), illustrated by the managers enacting their cognitive scripts for managing poor performance.

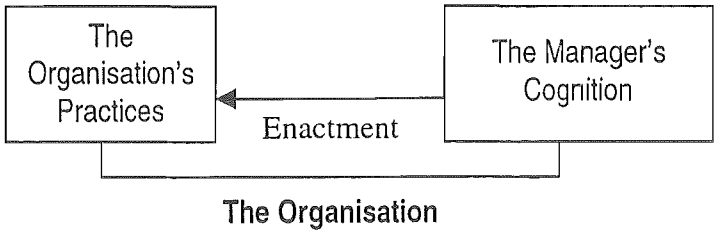


Figure 17.3 The Managers' Cognition's Influence on the Organisation

Combining this idea with the rest of the argument in this chapter leads us to the difficult conclusion that the organisation influences the manager and the manager influences the organisation. This conclusion describes a mutual influence – the organisation and the manager influence one another at the same time. The final thing to be done in this chapter is to describe how these two influences can operate simultaneously.

Mutual Influence: Giddens' Structuration Theory

DiMaggio and Powell (1983) provide a way of understanding how the organisation influenced the managers' cognition. Weick (1979a) provided a way of understanding how the managers' cognition influenced the organising process and – through social construction – the organisation. These two influences may seem to be in conflict with one another. The final step in this argument is to integrate these ideas.

Together, these ideas highlight the complexity of understanding management as a process. Managers are products of the organisations that they help create and are responsible for; the managers' cognition is influenced by and influences their organisations. Simply integrating these ideas is a difficult enough issue. But the focus of this thesis, and the reasoning that lead to this situation, is the role of cognition in the processes of organisation and management. The following paragraphs attempt to achieve this integration using Giddens' (1984) structuration theory.

Structuration theory is a grand theory of society. It reconciles differences between the worldviews of structural functional and interpretive sociology (Weaver and Gioia 1994). This is achieved by redefining key concepts in each worldview. These concepts form the central components of structuration theory: agency and structure (Giddens 1984). Giddens' (1984) model has an advantage over institutional theory and process theories of organisation in that it is a more general theory. Giddens' (1984) is talking about the more generic concept of 'social structure' which incorporates both institution and organisation.

This model has been applied to organisational settings (*eg* Ranson, Hinings and Greenwood 1980; Gioia and Weaver 1994). These applications have tended to be limited (Knights and Willmott 1992; Willmott 1981; Whittington 1992). For example, Ranson *et al* (1980) use Giddens' ideas to describe how organisations structure changes in response to external changes. This application creates a division between the organisation and its environment that is inconsistent with Giddens' (1984) statements about structural properties (Willmott 1981; Whittington 1992). For this reason, Giddens' (1984) theory will be described in some detail. The major components to be discussed are agency and action and structure and system. Together these produce duality of structure, which is the reason that structuration theory has been used in this thesis.

Agency and Action

The first element of structuration theory to received Giddens' (1984) attention is agency and action. Giddens (1984) takes a phenomenological view of action, where action is seen as a continuous stream. Separating, or bracketing action into discrete acts is an interpretation of this action (*see* Schutz 1967; Weick 1979a). Agency exists when an agent engages in intentional action; an actor's intentions influence the stream of action. While agency is intentional action, it has both intended and unintended consequences. One of the consequences – often unintentional – of agency is the creation and recreation of social structure (Giddens 1984).

Giddens (1984) also discusses motives that underpin agency. He argues that the actor may or may not be aware of their motives. Motives that an individual is unaware of are unconscious; motives that an individual is aware of are conscious. Giddens (1984) further divides conscious motives in terms of whether an actor can articulate them or not. Motives that can be articulated are a part of discursive consciousness; motives that an individual is aware of but cannot articulate are a part of practical consciousness. Practical consciousness is critical to the theory of structuration. This idea is effectively the same as ideas from cognitive science of tacit knowledge (Polyani 1967), theory in use (Argyris and Schön 1978), and background knowledge (Searle 1983). It refers to things that an individual consciously does but is unable to describe how they do them.

Structure and System

This discussion of agency introduces Giddens' (1984) ideas. He then moves to discuss "the core of structuration theory: the concepts of 'structure', 'system' and 'duality of structure'" (Giddens 1984: 16). He defines each of these concepts a little differently from the traditional structural-functional definitions.

Structure

The traditional definition holds that structure is a "'patterning' of social relations or social phenomena" (Giddens 1984: 16). Social systems do not possess structure but possess certain properties that can be described as structure. For Giddens, structure refers to rules and resources that produce social systems that:

> exhibit 'structural properties' and that structure exists, as time-space presence, only in its instantiations in such practices and as memory traces orienting the conduct of knowledgeable human agents (Giddens 1984: 17).

This means that structure exists in only two places: (1) instantaneous actions and (2) the memory (minds) of actors.

System

The second concept to receive Giddens' (1984; 1977) attention is a social system. Giddens (1977) accepts the structural-functional definition of a system as interdependence of action conceived only as homeostatic causal loops. Homeostasis is a stable pattern of actions in a causal loop where "each of the factors participates in a reciprocal series of influences, without any one acting as a 'controlling filter' for the others" (Giddens 1979: 19). However, he adds that systems can also be conceived of as self-regulation through feedback and reflexive self-regulation. Self-regulation through feedback occurs when a factor acts as a controlling filter. Giddens (1979) argues that reflexive self-regulation is a uniquely human function, which occurs when an agent's actions are influenced by their knowledge of the system.

Duality of Structure

The most important contribution of Giddens links these elements together. Giddens argues that "social structures are both constituted *by* human agency, and yet at the same time are the very *medium* of this constitution" (1976: 121). This sentence is what makes structuration theory different from other theories. Social structures are products, or constructions, of peoples' agency. At the same time, the social structure provides a means of acting. This is the duality of structure: "Structure is not to be equated with constraint but is always both constraining and enabling" (Giddens 1984: 25). Structure is produced by action at the same time as action is 'produced' by structure.

A more detailed explanation of the process by which structure possesses this duality is illustrated by Giddens description of communicating meaning in social interaction:

> The communication of meaning in interaction involves the use of interpretive schemes by which sense is *made* by participants of what each says and does. The application of such cognitive schemes, within a framework of mutual knowledge, depends upon and draws from a 'cognitive order' which is shared by a community; but while drawing upon such a cognitive order the application of interpretive schemes at the same time *reconstitutes* that order (Giddens 1976: 122).

The cognitive order that people draw upon is the structure. The use of interpretive schemes reconstitutes that order – recreates structure. The dual nature of structure is the main contribution of Giddens to social science (1984). The advantage of Giddens' (1984) theory is that it incorporates process theories of organisation (*eg* Weick 1979a). What it adds is a role for structure to influence these processes.

Society and The Organisation

The applications of structuration theory in the organisational literature have a distinctive bias (Whittington 1992). They have tended to adopt Giddens' (1984) integration of interpretive and positivist worldviews to describe the structuration processes by which organisational structure is produced (*eg* Ranson *et al* 1980). They have not, however, paid as much attention to the fact that managers draw symbolic resources from outside the organisation. Whittington makes this point more specifically in the context of this thesis in arguing that managers' "cognitive structures are not created *de novo* within particular organizations or industries, but [are] woven from the structural materials of local social systems" (1992: 708).

This means that managers draw upon their experience as a member of a society to produce their cognitive structures – the cognitive schemes by which the manager makes sense of what they do and say (Giddens 1976). To fully understand management in a structuration framework, it is necessary to understand the link between the manager, the organisation, and the society at large.

Cognition, Performance, and Management

The intention of this chapter is to explore the relationship between the managers' cognition and the organisation within which they manage. The final stage in this exploration is to integrate the ideas presented in this chapter using structuration theory (Giddens 1984). Figure 17.4 summarises what has been argued so far in this chapter. Figure 17.2 showed the influence of the organisation on the managers. This was explained using institutional theory (DiMaggio and Powell 1983). Figure 17.3 showed the influence of the managers on the organisation, using a theory of enactment (Weick 1979a; 1995a).

This diagram combines the ideas presented in this chapter – it shows the relationship between the managers' cognition and the organisation. The first relationship describes how the organisation influences the managers' cognition. This was described in terms of 'isomorphic processes' from institutional theory (DiMaggio and Powell 1983). These processes are the mechanisms by which the organisation produces the similarity between the managers' cognition.

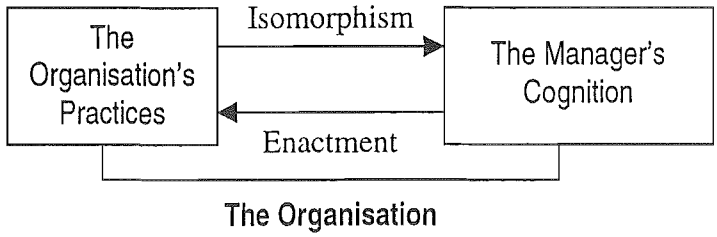


Figure 17.4 A Structuration Model of Organisation

The second relationship describes how the managers' cognition influences the organisation. This was described in terms of a process theory of organising, where the organisation is enacted (Weick 1979a). The managers' cognition determines how they will act in a situation. Their actions, combined with other people's actions, form the interactions – double interacts – that are the organisation.

Putting these two influences together is not simple. Doing this means that the organisation effects the managers' cognition and the managers' cognition effects the organisation. These two effects occur simultaneously. That statement is virtually identical to Giddens' (1984) definition of the duality of structure. Drawing on Giddens' (1984) structuration theory provides a way to describe the relationship between the managers' cognition and the organisation.

To explain Figure 17.4, we can begin with a manager acting. This action is intended to achieve something – such as to manage a poorly performing staff member. At the same time, these actions contribute to the creation and recreation of the organisation. The effect on the organisation may or may not be intentional.

The organisation that is created can be seen as a social system that produces structural properties, such as hierarchy and authority. They exist either when people act in accordance with them or in the memories of anyone who is involved with the organisation. When a manager attempts to manage a poorly performing staff member, their cognitive script for this situation determines both parties' actions. Their actions might be interpreted as the manager's authority over their subordinate.

Treating the organisation as a social system includes the idea of reflexive self-regulation of this system. This means that the managers' actions in the organisation are influenced by their knowledge that the organisation exists. The managers' actions in managing staff performance are influenced by, among other things, the organisation's Human Resources Policy.

Together, these elements explain how the manager simultaneously affects and is affected by the organisation. They describe how the processes of enactment and isomorphism operate together to produce the organisation and its managers. The medium for this process is the managers' cognition.

Managing Poor Performance and The Organisation

To illustrate the relationship between the managers' cognition and the organisation, the findings from the previous chapter can be included in this model. Ideas from Chapter Sixteen can be used to produce the left hand side a revised model. In that chapter, it was argued that the manager's cognitive script both determines the manager's behaviour when managing poor performance and is used to interpret that behaviour. In this interpretive function, the script may be changed. These relationships are combined in Figure 17.5.

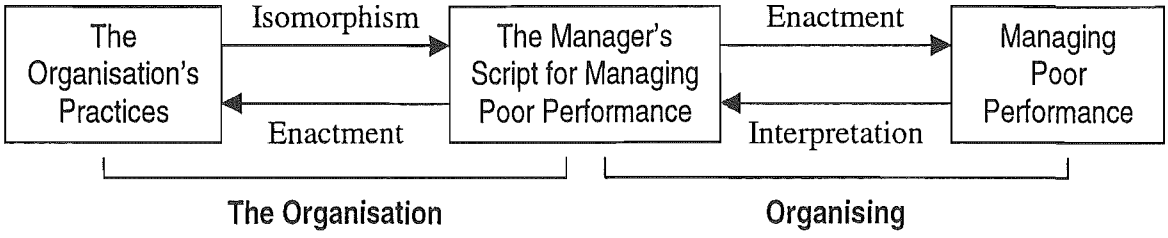


Figure 17.5 The Script and The Organisation

This figure attempts to illustrate the complexity of organising using the management of poor performance as an example. The manager has a cognitive script for managing poor performance. This script influences their behaviour in managing poor performance and, along with other cognitive structures, influences their behaviour in socially constructing the organisation. At the same time, their experience of managing poor performance and the organisation itself influence their script for managing poor performance. This process is dynamic: the managers' scripts, the way they manage poor performance, and the organisation are all continually in flux. Within this diagram, cognition plays an important role.

This diagram shows the role cognition plays in bridging the process of organising and the organisation itself. The organisation exists across time as memory traces (Giddens 1984) or cognitive maps (Weick and Bougon 1986). In this sense the organisation, as an entity, exists in the cognitive structures of the participants in the organising process. The key to this model – provided by structuration theory – is the dual nature of the relationship between the organisation and the managers' cognition. The organisation is both influenced by and influences the managers' cognition; the organisation is simultaneously a structure and a process. This duality is possible, because of the role of cognition.

Discussion: Cognition, Performance and Management

The final task in this chapter is to illustrate the points made more clearly from the present study. The model in Figure 17.5 describes four processes. Chapter Sixteen describes the processes by which the manager's cognitive script is enacted to produce their management of poor performance. At the same time, this script is used to interpret the manager's behaviour in managing poor performance. In the present chapter, the processes by which the organisation influences the managers' cognitive scripts are described. At the same time, the managers' cognitive scripts influence the organisation.

These processes, all operating simultaneously, demonstrate a structuration model of the organisation. For example, the organisation influences the managers through implementing a process for managing staff performance – the PMP. This process was implemented specifically to change the managers' thinking and behaviour. At the same time, the managers have a role in determining this process, through their role on committees helping to design, implement and modify this process.

One final set of relationships is only briefly discussed. Whittington (1992) criticised the use of Giddens' (1984) theory in the organisational literature (*eg* Ranson *et al* 1980) for ignoring the fact that the manager is also a member of a society. The society provides most of the resources that the manager draws upon to know how to act in a given situation (Watson 1994b; Alvesson and Willmott 1996). Three specific examples illustrate this point.

Firstly, the PMP that the organisation implemented was largely designed by external consultants. These 'experts' drew on a body of knowledge external to the organisation to model what they believed the organisation should be doing. Once again, Peters and Waterman (1982), Kanter (1989) and Hammer and Champy (1993) provide excellent examples of this happening at a broad level (*see pp* 235-236).

Secondly, the role of society is evident in the organisation's formal practices. Specifically, there is a societal influence over the organisation through legal requirements. It was clearly described how the process for managing a poor performing staff member needed to meet legal requirements to justify dismissal (*see pp* 234).

The final point draws on an impression formed in several interviews. Many of the managers described their approach to managing poor performance in paternalistic or maternalistic terms. One example is the quote on page 213. This manager talked about getting along side and supporting their staff. In this case, it seems that the managers may be drawing on societal roles that help to determine their behaviour as managers – the roles of mother and father. A similar point was made by Ingersoll and Adams (1992), who argued that children's stories contain some of the characteristics we associate with good organisational members – characteristics such as respect of authority and discipline.

The data collected in this thesis provides an illustration of the theoretical model developed in this chapter. This model argued that the manager and the organisation both influence one another. It has also argued that both the manager and the organisation draw on resources – such as roles, rules and models – from society at large to influence their behaviour. The manager combines these resources to form their cognitive models that influence their action in the organisation. At the same time, the effects of their action in the organisation are interpreted to modify their cognitive model.

Discussion and Conclusion

Throughout this chapter, the purpose has been reiterated. The intention was to describe, explore and explain the relationship between the manager's cognition and the organisation. This was illustrated using the managers' scripts for managing poor performance. Describing this relationship found that there was influence in both directions – the organisation influences the managers' cognition and the managers' cognition influenced the organisation.

The effect of the organisation on the managers' cognition was explored in more detail using institutional theory (DiMaggio and Powell 1983). Within this framework, three mechanisms, the isomorphic processes, were used to explain how the organisation influenced its managers. The effect of the managers' cognition on the organisation was explored using process theories of organising and enactment (Weick 1979a). This framework explained the role of cognition in the social construction of an organisation.

The final stage was to explain how these two models could function together. This was achieved using structuration theory (Giddens 1984). In this theory, the organisation is simultaneously a structure and a process. As a structure, it influences the managers' cognition; as a process, it is influenced by the managers' cognition.

These points were illustrated using the cognitive scripts for managing poor performance, introduced in the previous chapter. The similarity between these scripts was explained by institutional theory. The influence of these scripts on the organisation was hinted at in the data, and more fully developed using Weick's (1979a) theory. Finally, the duality of this process pointed to structuration theory as a way of integrating these ideas.

The discussion from this chapter was combined with the findings from the previous chapter. That provided a model explaining the relationship between cognition and the organisation. This relationship is one of mutual influence. While the organisation influences the managers' cognition, the managers' cognition also influences the organisation. For these two influences to occur simultaneously requires a reconceptualisation of the organisation in terms of structuration theory. This reconceptualisation is the main contribution of this chapter.

Section Five

Discussion and Conclusion

This thesis has been an exploration of managerial cognition and performance. It has reviewed past research on managerial and organisational cognition. It has described how some empirical studies of managerial cognition would be performed. It has reported and discussed the results from three analyses. The first analysis considered how managerial cognition effects the performance of the manager. The second analysis looked at the role of cognition in day-to-day managerial work. The third analysis speculated on the role of cognition in the processes that create both the organisation and management. The only thing left to do is to make some sense of all of this.

This section will try to bring together the threads that have been developed in this thesis. Chapter Eighteen is a recapitulation of the ideas presented in this thesis. It essentially summarises the thesis.

The final chapter, Chapter Nineteen, looks at what this thesis can tell us about management. Rather than focusing on the specific results reported in Chapters Fifteen, Sixteen and Seventeen, it focuses on the meaning of these results as a whole. This chapter attempts to make sense of the complexity that has been reported in the rest of the thesis.

Chapter Eighteen

Recapitulation

The exploration of managerial cognition and performance in this thesis has been split into five sections. Each section – including this final one – represents a part of the research process. The first section introduced the topic – managerial cognition – and provided some background information. The second section looked at the topic from a variety of theoretical perspectives, each focusing on a different aspect of the topics introduced. The third section was about how the research on these issues would be conducted. The forth section presented the results of the research and derived some meaning from them. This final section attempts to bring everything together into one place.

The aim of this chapter is to review the ideas that have been discussed in this thesis –the journey so far. It is arranged in terms of the sections of this thesis. The main issues in each chapter will be highlighted and the key points will be addressed.

Introduction and Background

The first chapter began by introducing the research topic and outlined the thesis. This was stated as a question, "How does the manager's cognition effect their performance?" From there, chapters followed that focused on the two main ideas of this thesis: management and cognition. In Chapter Two, management was defined and presented as an important institution in today's society, an institution about which our knowledge is not great. Two important gaps in our knowledge of management were identified – cognition and performance.

Cognition has become important with the rise of cognitive science. In managerial and organisation studies, the influence of cognitive science has been largely through the increased interest in cognition from social psychology. Chapter Three concluded by defining cognition and listing some of the topics that are considered to be cognition.

The final step in the introductory section was to use the background material to refine the research questions asked in this thesis. The initial question, "How does the manager's cognition effect their performance?" was unchanged. However, based on the background information in this section, it was emphasised that this question was too big for one thesis. So the emphasis on management was reiterated. From there, some issues relating to research were introduced. This study was presented as an interpretive study using qualitative methods. On that note, it was time to refine the theoretical ideas that guided this investigation.

Theory

The theory section of this thesis introduced one of the main sources of complexity in this thesis. The start of the theory section introduced two vastly different ways of conceiving cognition. Chapter Five reviewed the use of cognition in managerial and organisation literature and highlighted the presence of two very different conceptualisations of cognition.

The first of these, covered in Chapter Six, treats cognition as a variable that exerts causal influence over individual behaviour. The focus in this way of conceiving cognition is on cognitive structures – specifically cognitive maps and cognitive scripts. Chapter Six concluded by refining the research topic to ask, "How does the manager's cognitive structure effect their performance?"

Chapter Seven took a different view of cognition. Instead of seeing cognition as a variable, it is presented as an inseparable part of the processes that constitute the organisation and management. Chapter Seven started by reviewing process views of organisation and management. Chapter Seven concluded by refining the research topic to ask, "What part does the manager's cognition play in the creation of management?"

The second variable included in the research question was performance. Chapter Eight discussed performance in the context of organisational theory. It began by looking at the relationship between managerial and organisational performance. This concluded that one aspect of managerial performance is the performance of the organisation for which they are responsible. The next step was to introduce three different ways of conceiving performance. The first was to view performance as an outcome of the organisation. The second was to view performance as a part of the organising process. The third was to consider performance as individual staff performance. Each of these themes was discussed, with each having an important part to play in organisation theory.

The next step was to consider how managerial cognition and performance had been studied in other investigations. This review found all the ways of conceiving cognition and performance previously discussed to be represented. It did not find a consensus that answered any of the questions asked.

The final chapter in the theory section – Chapter Ten – reviewed the findings and refined the research question. Based on the two views of cognition, the research question was split into two. The first question asked: "What is the relationship between the manager's cognitive map and the performance of their organisation?" The second asked, "What part does the manager's cognitive script play in their management of staff performance?" The next section looked at how these questions would be answered.

Methodology

There were four purposes of the methodology section. The first was to introduce the tools and techniques associated with the research methods used. The second was to demonstrate the trustworthiness of the methods used. The third was to describe the process used in this investigation. The forth was to introduce the organisation.

Chapter Eleven began this, by describing some different approaches to cognitive mapping used in organisational and managerial research. From these approaches one was chosen and described in some detail. This included the processes by which the maps could be checked and how the maps could be compared between individuals.

Chapter Twelve performed a similar task for interviews. It introduced the assumptions of interview research. Then it introduced some specific techniques for gathering and analysing interview data. Finally, it discussed how the trustworthiness of qualitative methods in general, and interviews in particular, could be judged and established.

In Chapter Thirteen, I described the actual process by which the research was undertaken. This chapter incorporated the ideas from the previous two chapters. I adopted a reflexive style, where I described what I did and why I did it. I used this style to communicate the reality of doing this research, rather than abstract and depersonalise it by using a third person narrative.

The final methodology chapter – Chapter Fourteen – provided some background information about the research site. The research was conducted in one organisation. This organisation was introduced, and some of the critical issues and terms used by the managers were introduced and explained. This led to the empirical section.

Empirical

The empirical section is the heart of the thesis. It consisted of three analyses of the data collected. Each analysis took a different perspective on the data, had a different intention, and produced different results. These perspectives, intentions and results will all be reviewed here.

Cognition and Performance

The first empirical analysis related cognition and performance. The intention of Chapter Fifteen was to explore the relationship between the manager's cognitive map and the performance of their branch. The analysis produced cognitive maps from the managers' descriptions of the key issues determining the performance of their branch. These cognitive maps were used to understand how the managers viewed the performance of their branch. These maps were then related to the organisation's measures of branch performance.

In this analysis, the managers were divided into 'high' 'medium' and 'low' performance groups, based on the performance of their branch. Within each group, the managers' cognitive maps were compared using measures of the cognitive maps structure and a method of combining and averaging the collective map of the managers in that performance group. It concluded with six findings:

1. High levels of similarity between the maps.
2. The cognitive maps of managers of higher performing branches contained fewer links and concepts than the cognitive maps of managers of lower performing branches.
3. Managers of higher performing branches are more focused on financial performance than managers of lower performing branches are.
4. Managers of higher performing branches place relatively less emphasis on their staff than managers of lower performing branches do.

5. Managers of higher performing branches attribute less influence on performance to factors they consider to be outside their control than managers of lower performing branches do.

6. Managers of higher performing branches attribute greater influence on performance to their leadership of the branch than managers of lower performing branches do.

Future Research on Cognition and Performance

From these findings, a series of propositions for future research were identified. The first two results proposed that there is a high level of similarity between the cognition of managers in an organisation and that managers with more sparse cognitive maps tended to perform better than managers with denser cognitive maps. Both of these propositions need to be tested for their generalisability and the situations in which cognitive similarity and sparsity of cognitive maps leads to superior performance.

The remainder of the findings can be restated as specific research propositions:

1. That managers of higher performing organisations are more focused on financial performance than managers of lower performing organisations.

2. That managers of higher performing organisations place relatively less importance on staff than managers of lower performing organisations.

3a. That managers of higher performing organisations pay more attention to factors they can control than managers of lower performing organisations

3b. Managers of higher performing organisations pay less attention to factors that are outside their control than managers of lower performing organisations.

4. That managers of higher performing organisations are more likely to attribute their organisation's performance to leadership than managers of lower performing organisations.

Each of these propositions would be a useful research question to guide future study in the area of managerial cognition and performance.

Managing Poor Performance

The second empirical analysis derived cognitive scripts. The intention of Chapter Sixteen was to describe the role of these cognitive scripts in the manager's behaviour as a manager. The reason for this was that this chapter assumed that cognition was a part of the organising and managing processes.

This analysis began with the insight that the managers' descriptions of managing poor performance were very similar to one another. These descriptions were analysed and cognitive script for this process was derived. This script was described, and its role in the management of poor performance was discussed.

This chapter did not produce the list of findings from the previous analysis. Instead, it concluded by discussing the implications of scripts for understanding management and organisations. These implications were the importance of common routines, the importance of poor performance, abstract and concrete scripts, and enacted scripts.

Future Research on Cognition and Managing Poor Performance

Research in this area could proceed from each of the research implications in Chapter Fourteen. The first implication was the importance of common routines in the creation of the organisation. This suggests that it would be beneficial to spend time modelling common organisational routines and cognitive structures associated with these routines.

The second implication was the importance of poor performance to the organisation. This suggests that more attention needs to be paid in academic research to understanding why poor performance was so clearly articulated by the managers in this study. Three reasons were suggested in Chapter Sixteen – specific training, poor performance as a baseline, and the context of poor performance. Future research could identify which, if any, of these explanations is appropriate to explain why poor performance is important.

The third set of implications linked the current investigation to script theory and its specific application to management. The fact that the managers described their management of poor performance in concrete terms illustrated with specific examples from their experience suggested they were using abstract scripts. However, some of the managers described scripts for managing poor performance – albeit in less detail – without having any direct experience of managing poor performance. This suggests that cognitive scripts – and cognitive structures in general – would be useful and powerful tools for managerial development.

The final implication was that the managers enacted cognitive structures in their day-to-day performance of their job. This suggests that a combination of structured observation methods and interview methods used to elicit a manager's cognitive structures for performing their daily tasks would produce some rich findings. A research project could explore how managers think while performing their jobs.

The Script and the Organisation

Chapter Seventeen concluded with the idea that cognitive scripts were enacted and that this enactment created the organisation. The final empirical chapter took this point and elaborated on it. The intention of this chapter was to produce a speculative discussion of the impact of the managers' cognitive scripts – and cognition in general – on the organisation.

This discussion involved describing the influence of the organisation on the manager's cognition. This influence was explained using institutional theory. It then described the impact of the managers' scripts on the organisation in terms of process theories of organising. The next step was to integrate these two ideas using Giddens (1984) structuration theory. The structuration theory of organisations presents the organisation as being simultaneously a structure and a process. As a structure, it can effect the managers' cognition. As a process, it is effected by their actions. The final step was to combine the model developed in this chapter with the model of cognitive scripts from the previous chapter. This produced a model showing how the day-to-day processes of managing are related to the processes of social construction by which the organisation is created (*see* Figure 17.5, *pp* 249).

The final discussion of this chapter reiterated the importance of structuration in understanding organisation. Organisations can be viewed as being a structure and a process at the same time. Within this model, cognition forms a bridge between the structure and the process.

Future Research on The Script and the Organisation

Figure 17.5 (*pp* 249) shows four basic relationships – the enactment of cognitive scripts; the interpretation of managerial experience; the enactment of the organisation; and the isomorphic influence of the organisation over the managers' cognition. Future research could extend this model by looking at each of each of these relationships individually. These investigations would explore how a manager's cognition effects their day to day performance of their job; how managers develop cognitive structures from dealing with day-to-day experiences; how an organisation influences the cognitive structures of its managers; and how a manager contributes to the social construction of their organisation.

In addition to studying these relationships individually, an investigation on a large scale could look at them together. A study might explore how an organisation and its managers effect one another. In all cases, this research could be conducted as a cross-sectional study. However, because they are focusing on processes, longitudinal investigations would be more likely to yield interesting results. They would explore the same relationships, but would also explore how they change over time.

Another way to extend this model in the future is to explore in more detail the use of structuration theory to understand management. While this has been done at a theoretical level, it would be interesting to see it done in more detail at an empirical level. In doing this, the role of cognition – as the bridge between the process and structure of the organisation – could be explored in even greater detail.

Discussion

The final thing to be done in this thesis is to discuss the issues presented here. In this chapter, the journey has been reviewed. The next and final chapter talks about the combined impact of the empirical discussions on our understanding of management. Instead of focusing on the specific findings, it looks at the implications of three different ways of understanding managerial cognition and performance.

Chapter Nineteen

Discussion

The purpose of this thesis is to understand managerial cognition and its relationship to performance. This has been done theoretically and empirically. At both levels, a wide variety of ideas were drawn upon to facilitate the understanding of managerial cognition. This variety makes the results diverse and difficult to integrate. The purpose of this final chapter is to talk about the diversity of this thesis and how it helps us understand management. The ideas and results are too different to be meaningfully integrated. The intention of this chapter is to try to understand what the differences mean.

This chapter is organised in terms of the implications of the findings of this investigation. These implications are discussed in theoretical, methodological, and practical terms. Theoretical implications consider how the findings effect our ways of understanding management. The second type of implication is methodological, or how we study management. The final area is practical implications, which asks, "How might these findings effect the way people manage organising processes?" These implications are then discussed in terms of the management literature. This discussion seeks to locate the findings of this thesis in terms of this literature. Once these findings have been discussed, the final thing to do answer the question asked at the start of this thesis, "How does the manager's cognition effect their performance?"

This discussion draws on the themes from the empirical results presented in this thesis. These results reflect different ways of conceiving cognition, management, organisations and performance. The first way of conceiving managerial cognition and performance treats them as variables, which are related to one another. The second way of conceiving cognition and management considers cognition as an integral part of managing processes. The third way of conceiving management and cognition extends the second, to consider cognition and managing as parts of organising processes.

Theoretical Implications

I believe there are two purposes to a Ph.D. The first is to prepare or train the candidate as a member of the academic community – it is an apprenticeship. The second is to actually contribute to the work of that community in terms of improving our understanding of a topic and adding to the body of knowledge. For this reason, the theoretical implications of this thesis are the ones that I consider most important. The theoretical implications can be considered at two levels. The first is the specific findings from each of the empirical chapters. The second is the contribution of these ideas, taken together, to our understanding of management.

The specific findings have already been discussed in their respective chapters, and recapitulated in Chapter Eighteen. These findings were specific propositions about (1) the relationship between managers' cognitive maps and performance; (2) the relationship between cognitive scripts and managing poor performance; and (3) the relationship between the managers' cognition and the organisation.

Collectively these findings represent three different ways of understanding cognition and management. Management can be seen as a function, converting inputs (cognition) into outputs (performance); management can be seen as a process of managing; and management can be seen as an inseparable part of the process of organising. None of these views are new. What is new is the combination of all of these ideas into a single study. From this combination, there are certain insights to be made.

The first insight is that these concepts are so dramatically different that they produce analyses and results that are wildly divergent. That is not to say that the results contradict one another. Instead it says that the different conceptualisations focus on totally different aspects of the same phenomena. None of the results are inherently superior, or more accurate than any of the others. Instead, they reflect different questions being asked. The first analysis was looking for a relationship between cognitive maps and performance outcomes. The focus of this analysis was therefore to find points of variance between the managers' cognitive maps. The second analysis was trying to explain the role of the managers' cognition in their descriptions of their day-to-day work. This analysis needed to find ways of identifying the managers' cognition. The third analysis was similar to the second, but it focused on the relationship between cognitive scripts and theoretical idea of the organising process.

The second insight is that, despite this disparity of results, there are some issues that can be agreed upon. In this case, the similarity between the managers' thinking is an example. This result was treated differently by each analysis. In the cognitive mapping analysis, this similarity was taken as an interesting finding, which then had to be controlled to see what else was going on. This was done because the research question was interested in the cognition-performance relationship, not the cognitive similarity of the managers. In the cognitive script analysis, similarity was the main factor that led to the recognition and empirical identification of the shared script. Finally, in the organisational analysis, similarity was a critical piece of evidence that needed to be explained. The analysis then sought to draw on some possible reasons why this similarity existed.

The diversity of results and interpretations leads to the third conclusion. This conclusion is also the most difficult to articulate. Performing each of these different analyses demanded totally different things of the analyst. These demands included both what had to be done and how to think about the analysis. Shifting from one to the other actually required a significant change in thinking about management, cognition, performance and organisation to do the analysis.

The first analysis required a meticulous and tedious work through largely numerical data. This was only done due to the constant (but never overbearing) pressure from one supervisor. The second analysis began with a flash of insight – the similarity between the managers' descriptions of managing poor performance. It then required a systematic working through huge volumes of data to confirm then refine this insight. A flash of insight again inspired the final analysis of cognition and the organisation. In this case, however, it was quickly followed by the realisation that the data alone would not support this insight. So I had to incorporate a lot of reading and learning at a theoretical level to support it.

The final theoretical insight is that these different prespectives, and the different ways of thinking associated with them, are necessary to understand cognition, management, performance and organisation. None of them alone is sufficient to describe the complexity of any of these concepts. This was already apparent by the existence of cognitive science, which is composed of multi-disciplinary studies that many observers claim lack the level of agreement required to refer to it as a field or discipline. Instead, it draws ideas from a wide array of different contributory disciplines. The results from this thesis indicate that this is necessary for both management and cognition.

The theoretical implications include four points. The first is that the different conceptualisations of the key variables in this study produce different analyses. The second is that, while there is some agreement between the findings, the interpretation of these findings can vary wildly. The third is that the different ways of knowing place different demands on the theorist – whether writing or reading theory. The fourth is that the complexity of the subject matter demands that these different perspectives are required to understand them.

Taken together, these results present a problem. If the complexity of cognition and management require the adoption of different theoretical perspectives, and if the adoption of these different perspectives is beyond the ability of one person, then understanding management may be impossible. This conclusion can be rejected, with the acceptance of two other conclusions about management. The first conclusion is that management can not be understood using a single theoretical framework. The reason for this is reflexivity – once a metatheory of management is proposed, people will adopt this theory and that will modify their behaviour. The second conclusion is that understanding management is beyond the ability of one person. Any one person's view is going to be limited by his or her own assumptions and preconceptions.

The way forward for management theory is to embrace the diversity that is necessary to know management. This can be done in several ways. The first is what was attempted in this thesis – to attempt to draw multiple perspectives into one study. The second is to continue to pursue theory within the different traditions present in the field. The third is to increase the dialogue between the different traditions in management. The forth, also attempted in this thesis, is to draw insight from other disciplines to facilitate our understanding of management.

All of these arguments may raise the question, "Why support any theory over another?" The answer implied by this thesis is not to adopt an atheoretical approach to understanding management. Structuration theory was used to combine some of the ideas presented in the thesis. What does change is the role that theory should play. Instead of theory attempting to provide definitive answers to questions about management and organisations, theory should provide a set of intellectual tools for thinking about management and organisations. The value of a theory is then determined by the utility of the tools it provides. In this sense, the value of a theory would be in the questions it asks rather than the answers it provides.

Methodological Implications

To understand managerial cognition and performance using the different theoretical perspectives adopted also required that different methods be adopted. Under the umbrella of a single thesis, different methodologies were combined. This combination of methods was achieved in a single data gathering approach. The argument made in this chapter is based on the experience of trying to use different methodologies.

The first point is the fact that combining different methodologies is very difficult. The result, in this study, was a compromise. The studies reported here are primarily qualitative investigations, with a little bit of quantitative analysis added in. This assessment is in spite the fact that the first analysis – the cognitive maps – is largely quantitative. The reason for this assessment needs to be explained in more detail.

The shift in thinking from one type of method to another is very profound. The reason that this thesis does not combine qualitative and quantitative methods in their fullest sense is the differences between these methods. Any methodology requires a commitment to certain characteristics of that method. Quantitative methodologies rely on a commitment to the ability of numbers to represent a reality. From this commitment, the mathematical manipulation of these numbers to produce or clarify our understanding of that reality is perfectly sensible. Qualitative research is more heterogeneous, but it generally seems to share notions of studying meanings. The intention is to understand these meanings from the participant's perspective.

The qualitative commitment is reflected in this study. It was not assumed that the cognitive maps were a true and accurate representation of the managers' thinking. They were a tool that allowed access to the managers' thinking about performance. This analysis – which is unapologetically mathematical in nature – attempted to understand how the managers' viewed their branch. Quantitative techniques were used to achieve a qualitative purpose.

It should be noted that these different commitments are not opposites of one another. Qualitative and quantitative methods are not in opposition to one another. They do, however, try to achieve very different things. They usually, but not always, go about trying to achieve them in different ways.

That argument also implies one more point. The differences between qualitative and quantitative methods are not based on the different techniques that each usually relies upon. The differences are linked to the assumptions that underlie these methods. The assumptions determine what is important, what needs to be studied, and how to study it. This separation of method into assumptions and techniques is an important distinction.

The argument made here is that this thesis was primarily a qualitative thesis that used some quantitative techniques. The reason for this is the difficulty in shifting from thinking in terms of representing reality to understanding meaning – the main difference between qualitative and quantitative methods. This difference does not mean qualitative and quantitative methods are contradictory to one another. It does mean that they are difficult to combine in a meaningful way. This argument echoes the argument made in the theoretical implications. This fact suggests a final point relating to methodology.

The distinction between theory and methods is often very small: the method is often theoretical and the theory is often methodological. This means that the method chosen always contains some implied assumptions that should be reflected in the theory. And the theory similarly contains assumptions that should be reflected in the methodology. One aim of a piece of empirical research should be to find a theory and method that are complimentary to one another.

Practical Implications

The final theme to discuss is what does this thesis tell us about being a manager. This has not been a significant feature of this thesis to this point. The primary intention of this thesis has been to understand management through understanding how managerial cognition relates to performance. It was not attempting to produce a normative model – a 'how-to' guide to management. Yet this is a thesis about management. So what does it tell us about being a manager?

The main point of this discussion has been stated over and over again: management is complex and can be understood in a variety of ways. This statement applies equally well to the managers themselves as it does to the academics studying management. Each manager can conceive management differently. Their conceptions of management will influence their behaviour as a manager. This has four implications.

The first implication frames the complexity in terms of uncertainty or equivocality. The world is not a certain place. Managers, however, need to act as if it were certain. This demands a degree of confidence from the manager. Instead of saying, "I don't know what to do." They need to say, "This is what we are going to do." If complexity and equivocality are the basic features of management, then there are no generic competencies that make a good manager. Confidence, or the ability to act on one's conviction, may be the nearest we can come to a general skill or ability required of managers.

The second implication is that broadening the conceptual basis from which they view their job would advantage managers. This increases the possibilities that the manager could conceive within their job. From these increased possibilities, they would be better equipped to deal with the innate complexity of managing.

The third implication is that this diversity in understanding managerial jobs means that the jobs themselves are diverse. Management is modelled in this thesis as a product of complex interactions within an organising process. As each person's behaviour is determined by their understanding of management – understanding that might be conceived of as a cognitive script or a cognitive map. From the diverse understandings of these people, 'management' produced by their interactions is similarly diverse.

The final implication relates to change. Changing managerial jobs requires a change in people's thinking about these jobs. However, this is not simple. Firstly, the existing mindset is already encoded in and reinforced by the existing organisation. The reflexivity of social systems is as much a barrier to change as it is a tool for change. Secondly, changing a person's thinking about a job may involve a very basic change in their way of viewing the world. That is a dramatic adjustment for a person to make. However, the idea that change is accomplished through a change in thinking is attractive.

This point and the four implications are the heart of the contribution of this thesis to the practice of management. It is a recognition of the difficulty of being a manager. It does not provide any easy answer, because there are no easy answers suggested by this thesis. Instead, it provides some general themes, from which any manager might be able to derive what is appropriate for them to take from these themes.

Contribution to the Literature

One of the purposes of a Ph.D is to contribute to a body of knowledge. In this case, the appropriate body of knowledge is the management literature. Each of the findings discussed in the previous section will now be linked to the managerial literature. Much of this linking is done as a stream of consciousness – it is done to invite the reader to consider how these ideas might be associated with other studies of management.

Theoretical Contributions

The first area is to look at how the findings discussed in this chapter relate to the theoretical management literature. The four theoretical implications are linked to the literature in three ways. The first talks about the divergence of results and the different ways of thinking necessary to understand management. The second looks at how common findings can receive different interpretations. The third looks at some examples of how diversity has been embraced in management theory.

Divergence of Results

The results presented here show a divergence. From a single data collection process, and a single set of managers, three vastly different analyses have been performed. This challenges the appropriateness of Hales (1986: 105) call for "consistent categories and concepts" to be used in the study of management. The divergence found in this thesis suggests that any single theoretical perspective is inadequate to describe management.

It also suggests that efforts to produce a metatheory of management (*eg* Tsoukas 1994) are doomed to failure. Willmott's (1996) critique of Tsoukas's (1994) effort highlights what may be an irreducible problem. Specifically, Willmott (1996) found that Tsoukas's (1994) model had a fundamental internal contradiction. It seems that this sort of contradiction may be inherent in the nature of management. As such, a metatheory may be an impossible dream.

The divergence of results also suggested that quite different ways of thinking about the data and the investigation. Stewart (1989) recognises this point. She concludes her review by stating that:

> ... some researchers... will see the main way forward as improving the categorisation of behaviours and relating these to measures of effectiveness. Others... will think that is will be potentially more valuable to try and improve our understanding of the actions and thoughts of managers over time... (Stewart 1989: 9)

Each way of moving our understanding of management forward requires different things of the investigator. The different ways of thinking include different assumptions about the nature of management and organisations. This point echoes the earlier discussion about the role of theory in management as providing tools for understanding rather than definitive answers.

Common Themes – Different Interpretations

The second finding was that there were some common findings from the divergence in analyses. In this case, an example is the similarity between the managers' thinking. This is consistent with the reviews of the managerial literature, cited in Chapter Two. From these reviews, they produced some common themes. Hales (1986: 104) then described these themes as being "sufficiently general as to be uninteresting."

It is also common that these findings are interpreted quite differently. In this thesis, similarity between the managers' cognitive maps was treated as a finding in itself (Chapter Fifteen) and as a hint that there was something else going on (Chapters Sixteen and Seventeen). This is also evident in the literature. Most observational studies of managerial work found high levels of fragmentation of activities. Mintzberg (1973) and others suggested that this was making managers ineffective. Kotter (1982), on the other hand, argued that this was in fact the very source of their effectiveness.

Embracing Diversity

The final theoretical point to be made is the need to embrace the diversity. This embracing means bringing different theoretical perspectives, different assumptions and different bodies of knowledge to the understanding of management. Process models of management and leadership are one way to embrace this diversity (*eg* Hosking 1988; Knights and Willmott 1992). Two other recent examples of this are Watson (1994a) and Alvesson and Willmott (1996).

Watson's (1994a) study is an ethnography of management in a British company (*see* Dalton 1959 for another example of this type of research). He worked in the company for a year as a manager, collecting data as well as working as a manager. This data is subjected to sociological analysis, providing him with unique insight into the world of the manager. Watson (1994a: 223) concluded:

> Management is essentially a human social craft. It requires the ability to interpret the thoughts and wants of others – be these employees, customers, competitors or whatever – and the facility to shape meanings, values and human commitments.

Alvesson and Willmott (1996) take a very different approach. Their book is theoretical rather than empirical. It draws on critical theory to "understand how the practices and institutions of management are developed and legitimized within relations of power and domination" (Alvesson and Willmott 1996: 51). They conclude:

> We have suggested that the irrationalities and contradictions associated with the theory and practice of management make it fertile ground for the application and development of critical thinking in general and CT [critical theory] in particular. Tensions within organizational practices and relations can promote critical reflection as established recipes for survival and success, both individual as well as organizational, are found to fail; and this pain spurs a search for fresh ideas and perspectives (Alvesson and Willmott 1996: 212).

Both books are examples of different ways of thinking about management. Individually, they each provide enormous insight to management. Together, they highlight the diversity of theory that can be used to understand management.

Methodological Contribution

The methodological contributions of this thesis are discussed in terms of two issues. The first is the difficulty in combining different methodologies. The second is the relationship between theory and method. Both of these points have implications for how management is studied.

Shifting Gears – Qualitative and Quantitative Research

The first point is that the difference between qualitative and quantitative methodologies is large. They each require quite different ways of thinking about the data collected and each has quite different objectives. As such these two methodologies might be seen to be representative of underlying paradigms.

This argument may sound as if it is supporting Burrell and Morgan's (1979) ideas of incommensurable paradigms. They argued that different ways of thinking about social science research – such as functional and interpretive paradigms – were so different from one another that they could never be combined (Burrell and Morgan 1979). This means that there is no room for dialogue between paradigms, or for an external criticism of a paradigm (Alvesson and Willmott 1996; Deetz 1996).

The point made in this thesis is that within a single study there are large difficulties to be overcome in combining different methodologies and paradigms. In most cases, a single study will be biased towards one side or another. An example of this is Weick (1995a). He uses what Burrell and Morgan (1979) term ontological oscillation. This means that espoused interpretive ideas use realist assumptions of concrete realities. What Weick (1995a) does is use realist ideas to help understand organising as an interpretive process. This use of different assumptions about the nature of reality and knowledge denies incommensurability of paradigms, but still shows that individuals have consistent biases in how they use the different perspectives.

The most important implication of this point is the importance of stating clearly the assumptions, biases and preconceptions that a researcher takes into a research project. The method needs to be described in great detail, including the changes that were made and the reasons for these changes (Watson 1994b). By making all of this information available, the readers of a piece of research are better able to assess what it means to them (Guba and Lincoln 1985; Kvale 1996; Watson 1994b).

Theory is Method

The second point made in the methodological implications is that the gap between theory and method is small, if it exists at all. How we think about management will determine how we go about studying management, what we think we should be studying as management, and what the purpose of management research is. Watson (1994b) gives one example of what this approach might mean.

Stewart (1989) hinted at this when she provided eight ways forward for management research. She concluded, "Which way or ways are chosen by individuals will be influenced by their preferences for quantitative or qualitative methods" (Stewart 1989: 9). Similarly, Hales (1986) argued that much of the diversity in our knowledge of management might be a product of different research processes. In this thesis, it has been argued that different methods reflect the diversity of ways of understanding management – something that is necessitated by the nature of management itself.

Practical Contribution

The practical contributions of this thesis relate to how management practice might be guided by the theoretical and methodological implications. These insights can be linked to other management literature. The main areas of practical contributions are uncertainty, equivocality and confidence, thinking about management, management as interaction, and thinking about change.

Uncertainty, Equivocality and Confidence

The idea that confidence is what managers need to overcome uncertainty and equivocality of managerial work is a contentious point. It suggests that a lot of work to provide advice to managers (*eg* Peters and Waterman 1982; Kanter 1989; Hammer and Champy 1993) is misguided – but it is still useful. This idea suggests a re-interpretation of the role of this advice.

The first point is that the advice dispensed in books such as these, as well as by a huge industry of consulting, is technically adequate but not optimal. What this means is that it is good enough for managers to act according to this advice. In this sense, it might be thought of as satisficing the demand for guidance to managers.

The second point is that the main benefit of this advice is not to tell managers exactly what to do, but to motivate them to do something – anything (Weick 1987a; 1990b). It is in this sense that the idea of confidence as a characteristic of effective management makes sense of the existence of popular management literature. Managers are faced with a complex, equivocal and uncertain world every time they go to work. They need ideas for how to approach this. One place they draw these ideas from is popular literature (Watson and Bargiela-Chiappini 1998). These ideas are then used as resources with which the manager makes sense of their work and their role (Weick 1995a; Watson and Bargiela-Chiappini 1998).

Thinking about Management

The second point echoes Weick's earlier work (1979a). He calls for people – managers in particular – to complicate themselves (*see also* Bartunek, Gordon and Weathersby 1983). By this he is referring to finding new ways of approaching working in organisations. For a person to be an effective manager, they will need to deal with a wide range of different situations. By broadening our knowledge and our ways of thinking, we develop a wider array of cognitive resources. It is these resources that we draw upon when confronting management. Commenting on Weick's (1979a) ideas, Bartunek *et al* (1983: 273) state:

> ...that most people perceive and interpret events from a narrow frames of reference. Yet many situations are sufficiently complex to be amenable to a wide variety of interpretations and understandings: no single and complete definition of the situation exists. Thus, having a narrow framework for understanding often results in ineffective managerial behavior.

Management is Interaction

The idea that management is fundamentally a social activity is one that has been well documented (Martinko and Gardener 1985; Hales 1986; Stewart 1989). In this case, the point has been taken further. Not only does management involve people, but also the existence of management is dependent on the interactions of people. Managers have been conceived as agents of the relationships that constitute the organisation (Leblebici and Salancik 1989; Hosking 1988). Watson (1994a) found exactly this point in his study, epitomised by his concluding statements (*see pp* 275 of this chapter).

Thinking about Change

The final point has its clearest parallel in Bartunek's writing (Bartunek 1984; 1993; Bartunek and Moch 1987; Bartunek and Ringuest 1989). In each paper, Bartunek has argued that different types of organisational change require different changes in the thinking of organisational members. First order changes require change within existing schemata for working in the organisation. Second order changes require changing these schemata – new ways of thinking about work. Third order changes involve the development of change schemata, with which "organizational members develop the capacity to identify and change their own schemata as they see fit" (Bartunek and Moch 1987: 487; Bartunek 1993). Both second and third order changes require a change in thinking by the individuals involved.

The Answer

This thesis began with the question: "How does a manager's cognition effect their performance?" Now that this question has been elaborated, refined and explored in several different ways it is time to produce and answer to this question.

The difficulty, however, is that this thesis does not provide any conclusive answer to the question asked. Or, to put that another way, the way in which managerial cognition effects managerial performance depends on how cognition, management, performance and the organisation are conceived. By changing these conceptions, the answer changes. The three approaches included in this thesis conceived all of these factors in vastly different ways. From these difference conceptions, different theories were appropriate, different data were important, there were different results and different implications.

These differences are the main finding of this thesis. Management, cognition, organisation, and performance are all topics that are too complex to be understood in one way. They all demand that a variety of different ways of knowing are applied to them. Each way of knowing will approach the topic in a different way. Each will focus on different aspects of the topic. Each will try to produce different outcomes. These differences are representative of the complexity of cognition and management.

This thesis began in trying to answer what appeared to be a reasonably straightforward question. It was trying to find the relationship between managerial cognition and performance. Cognition and performance have been used as catalysts for this final discussion, which focused on management. This thesis has ended with celebration of the complexity and diversity of management.

Section Six

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Section Seven

Appendices

There are two appendices for this thesis. The first contains the research material referred to in Chapter Thirteen. This material includes material sent to the managers before the interviews began:

- *The Questionnaire and*
- *The Cover Letter.*

And material taken to the interviews with the manager:

- *The Interview Protocol and*
- *The Concept List.*

The second appendix contains the thirtytwo cognitive maps of the managers produced for this study. These maps are the ones confirmed in the second interview and used in the analysis in Chapter Fifteen. They are presented in no particular order.

The "Drivers" of Branch Performance in Trustbank Canterbury

Instructions

Thank you for participating in this research. The study you will be involved in is designed to explore the factors that influence branch performance in Trustbank.

All information gathered during this project will be confidential. If you have any enquiries about the questionnaire please direct them to **Geoff Goodhew**.

Branch performance measures in Trustbank include financial performance, customer satisfaction, and staff satisfaction.

First would you outline your perception of the branch performance measures used by used by Trustbank as a reflection your view of your branch's performance.

Branch Performance

Q1 In your view do the branch performance measures used by Trustbank provide an adequate reflection of the performance of your branch? *please check one*

☐ Yes, the branch performance measures adequately reflect the performance of my branch.

☐ No, the branch performance measures fail to adequately capture my branch's performance.

Q2 If you answered 'No' above, please briefly explain why and outline other measures that should be used in addition to or instead of Trustbank's branch performance measures?

_____

_____

_____

_____

Performance Drivers

Q3 We would now like your view of the factors that you believe influence the results your branch achieves on the branch performance measures. In the space over the page please list the main factors that influence these results in your branch. This influence may be to increase or decrease your branch's performance, constrain or limit performance, or to expand or remove a barrier to high performance. Please list as many or as few factors as come to mind immediately.

Please turn to and complete the next page.

Please return this questionnaire in the enclosed envelope by

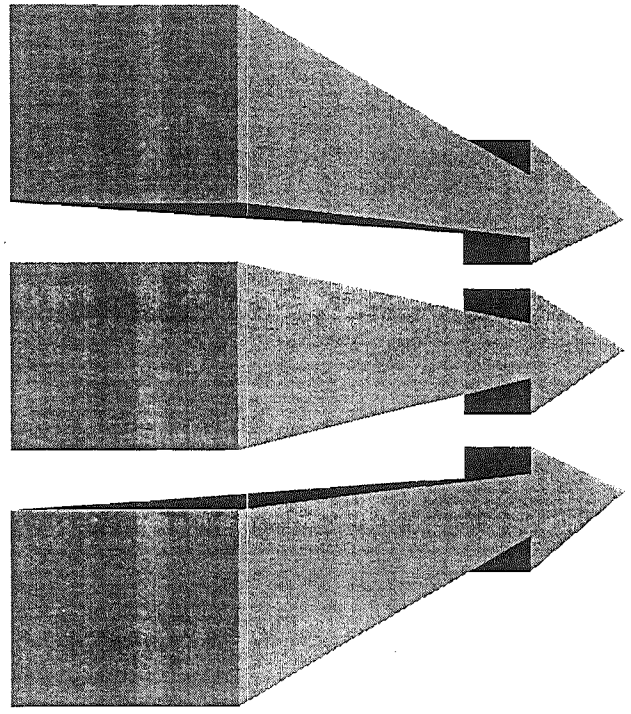
Monday 5 March 1996

Thank you very much for your help in this research. For the next stage a researcher will contact you to arrange a time to discuss your views about the factors which drive branch performance.

Q3 Bearing the branch performance measures in mind, please list the main factors which influence these results in your branch. For example, you may believe that location is a strong driver of performance in which case you would write 'location' in the 'Factors' column. Include as many or as few factors as you believe are necessary to adequately explain branch performance.

Factors

Branch Performance Areas



Financial Performance of your branch

Customer Satisfaction with your branch

Staff satisfaction in your branch

«FirstName» «Surname»
«Branch» Branch
Trustbank Canterbury

26 February 1996

Dear [Mr|Ms] «Surname»

Managerial Thinking Styles

This letter is to enlist your support for a research study exploring the different ways in which managers think about their business.

The research is being undertaken by Geoff Goodhew, who is studying for his PhD under the supervision of Peter Cammock. As you may know, Peter is on study leave at present, hence my authorship of this letter to you.

Research questions: in the research we are exploring two central questions:

- What do Branch Managers think about the ways in which their branch performance is measured and judged by Trustbank?
- What factors do branch managers believe drive performance in their branches?

We hope that answers to these questions will help us in the future in both the selection and development of managers.

Confidentiality: the results from the research will be held in the strictest confidence. Aggregate results will be reported both to you and to senior management in Trustbank. However, your individual results and answers will only be reported back to you for your confirmation.

Process: the project has three stages:

1. the attached questionnaire is the first part of the research
2. Interview 1: an interview of about 70 minutes, exploring your views about banking.
3. Interview 2: an interview of about 45 minutes to confirm and further explore your views.

At this stage we would appreciate your taking 15 minutes to complete this brief questionnaire and return it in the enclosed envelope.

Geoff Goodhew will contact you shortly to solicit your further involvement, and to make a time to meet.

Thank you in advance for your involvement.

Yours sincerely

Stephen Dakin
Senior Lecturer

Interview One

(This interview is divided into two halves. The first half maps the common constructs elicited from the questionnaire. It has three stages and purposes:

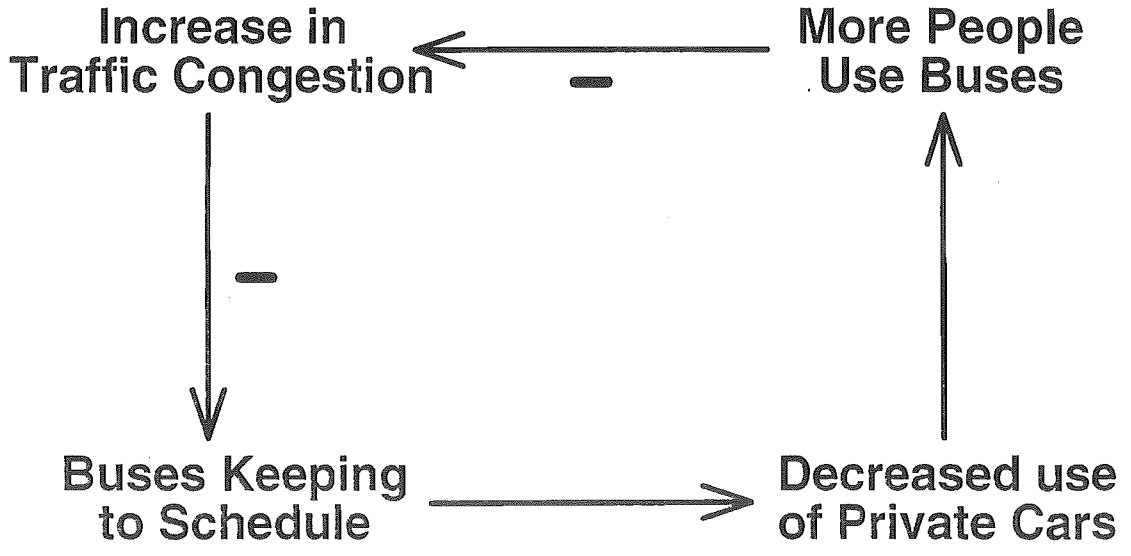
1. to explain the purpose of this part of the interview
2. to illustrate the way in which the concepts are connected
3. to assist the participant in building their own cognitive map)

Instructions

In this research I am exploring the way managers think about factors that drive performance in their branch. We will discuss the key factors driving the performance of your branch and the relationships between those factors. This study will involve two interviews. In this interview I will ask you to explain how the main performance factors interact and combine to influence the PMPs in *your* branch. I will then go away and produce a map of the ideas we have discussed. In the second interview we will confirm your map and I will ask you to add and explain any other factors that you believe are also important to you branch's performance.

In exploring your view of the performance drivers in Trustbank we will use a cognitive mapping approach. To demonstrate this, consider an example from the paper last year looking at traffic congestion and the use of buses.

In cognitive mapping, if two concepts are related they are joined. If an increase in traffic congestion causes Buses to run late, then we connect "Increase in Traffic Congestion" to "Buses Keeping to Schedule." Since the first concept causes the second, there is an arrow from "Increase in Traffic Congestion" to "Buses Keeping to Schedule." Since an increase in the first concept leads to a decrease in the second, the effect is negative. Since Buses running late cause more people to use their cars, there is a positive link between "Buses Keeping to Schedule" and "More People use Buses." More people using Buses decreases the use of private cars. There is also a negative link between "Decreased Use of Private Cars" and "Increase in Traffic Congestion."



Once we have discussed the factors that you believe to influence the PMPs in your branch, I will develop *your* map and then return to discuss it with you.

The purpose of the research is to find how you, the branch managers model and map performance in your branches.

When the participant is comfortable with the approach, we move onto the actual data.

The following list of factors was identified as being important to a branch's performance. To begin I would like you to:

1. Indicate by a check (✓) or a cross (✗) the relevance of each of these factors to your branch.
2. Our task is to model the relationships between these factors and the performance outcomes in your branch.

I am interested in the relationships that you recognise intuitively. If you believe that one factor has no effect on any of your branch's performance measures then say so. I am also interested in how you see the different factors, including the performance areas, effecting one another.

The second half of the first interview asks the manager to elaborate the core constructs. This part of the interview will

1. define the common elements and performance measures
2. create a hierarchy of the factors

Now that we have the factors mapped, I would like to understand more about these factors. I am going to ask you to define and elaborate what each of these factors means to you.

The questions used to develop these definitions will be of the general form:

1. Could you please define X?
2. What is X similar to?
3. Can you give me some examples of X?
4. What is X and example of?

The final two questions will be used as necessary to identify more or less abstract items that are related to the concept being explored.

Interview Two

This interview also has two parts.

Part One: Validation

The first will validate the first interview data by presenting the participant with the map and hierarchy produced in the first interview.

On the basis of our earlier interview, I have produced this map relating the factors we discussed. I would like you to look over this map and see if it makes sense to you. If it does not then I would like you to tell me what changes need to be made.

Any corrections will be made to the map on the spot. The hierarchy can also be corrected as necessary. We will also consider any specific concerns the participant may have. Once this is done, we can move to the next stage of the research.

Part Two

This asks the participant to respond as they see fit to add additional items and relationships to the map.

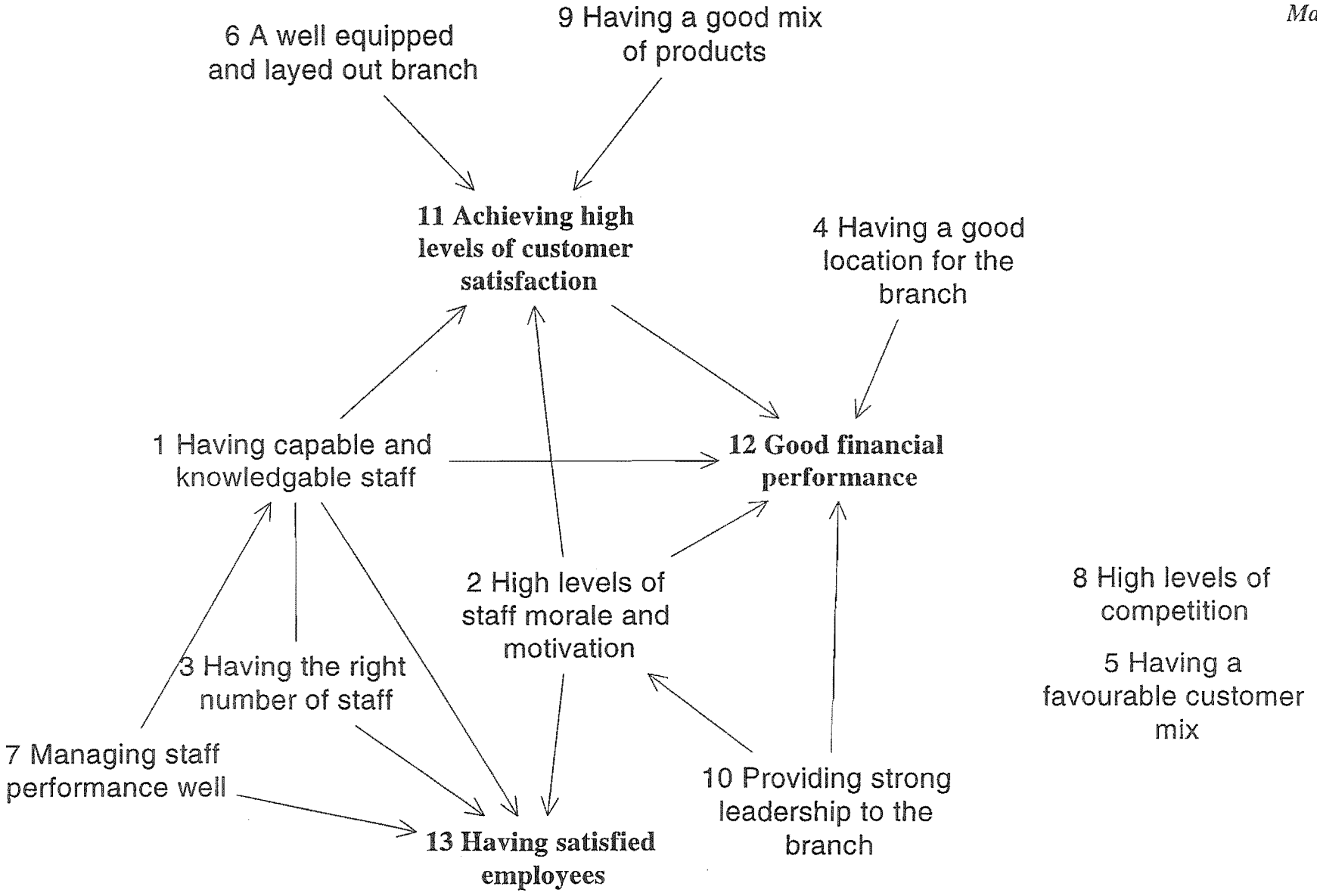
Up to this point we have used a limited set of factors that influence your branch's performance. I would now like you to add any other factors you think are important in determining your branch's performance?

As this is progressing the participant will be asked to explain and define the concepts being added.

Thank you for participating in this study. Do you have any further questions or comments? I will forward a copy of your completed map to you within a week. I will also make a summary of the results available for you as soon as they are completed.

1. Having capable and knowledgeable staff
2. High levels of staff morale and motivation
3. Having the right number of staff
4. Having a good location for the branch
5. Having a favourable customer mix
6. A well equipped and layed out branch
7. Managing staff performance well
8. High levels of competition
9. Having a good mix of products
10. Providing leadership to the branch

11. Achieving high levels of customer satisfaction
12. Good financial performance of the branch
13. Having satisfied employees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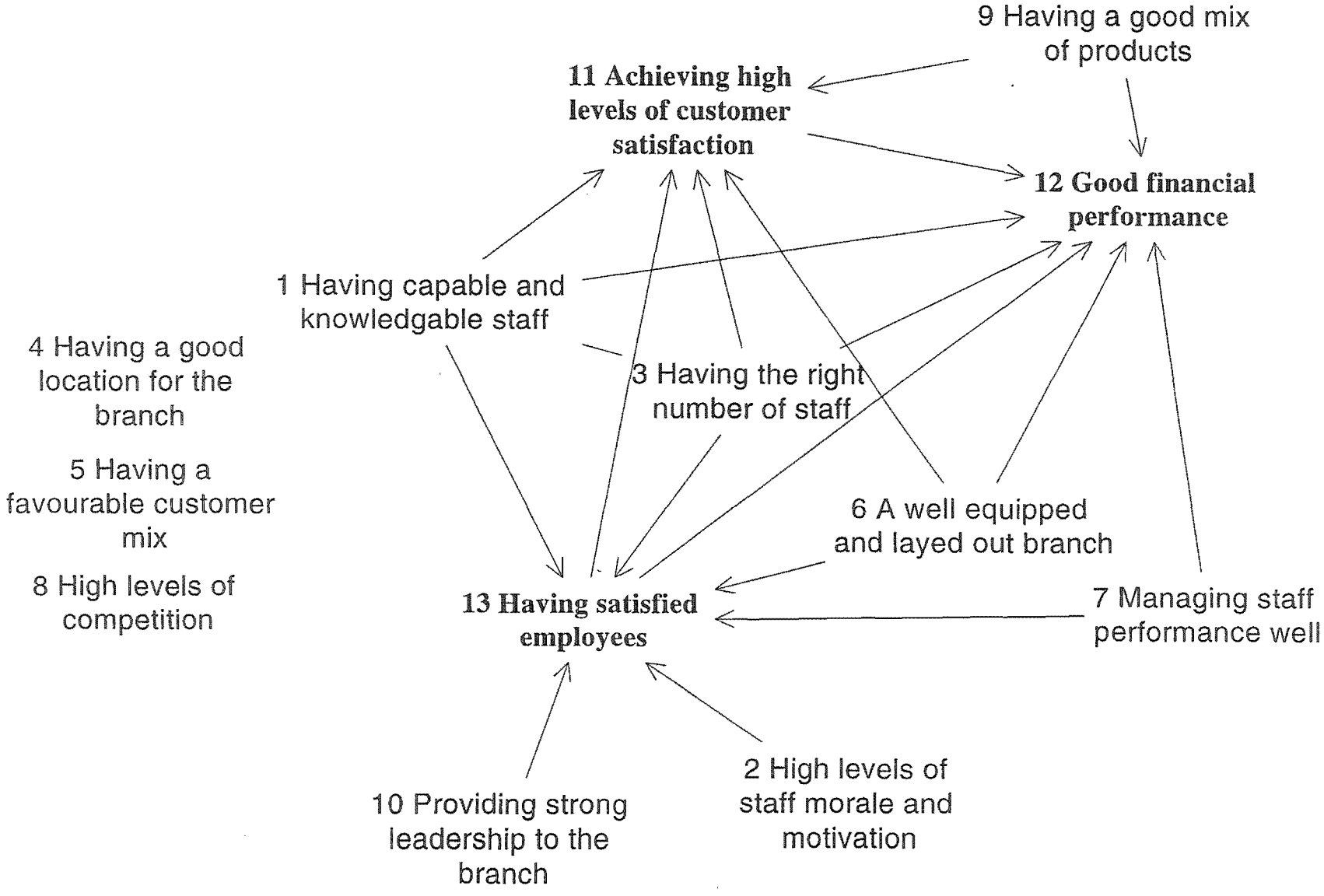
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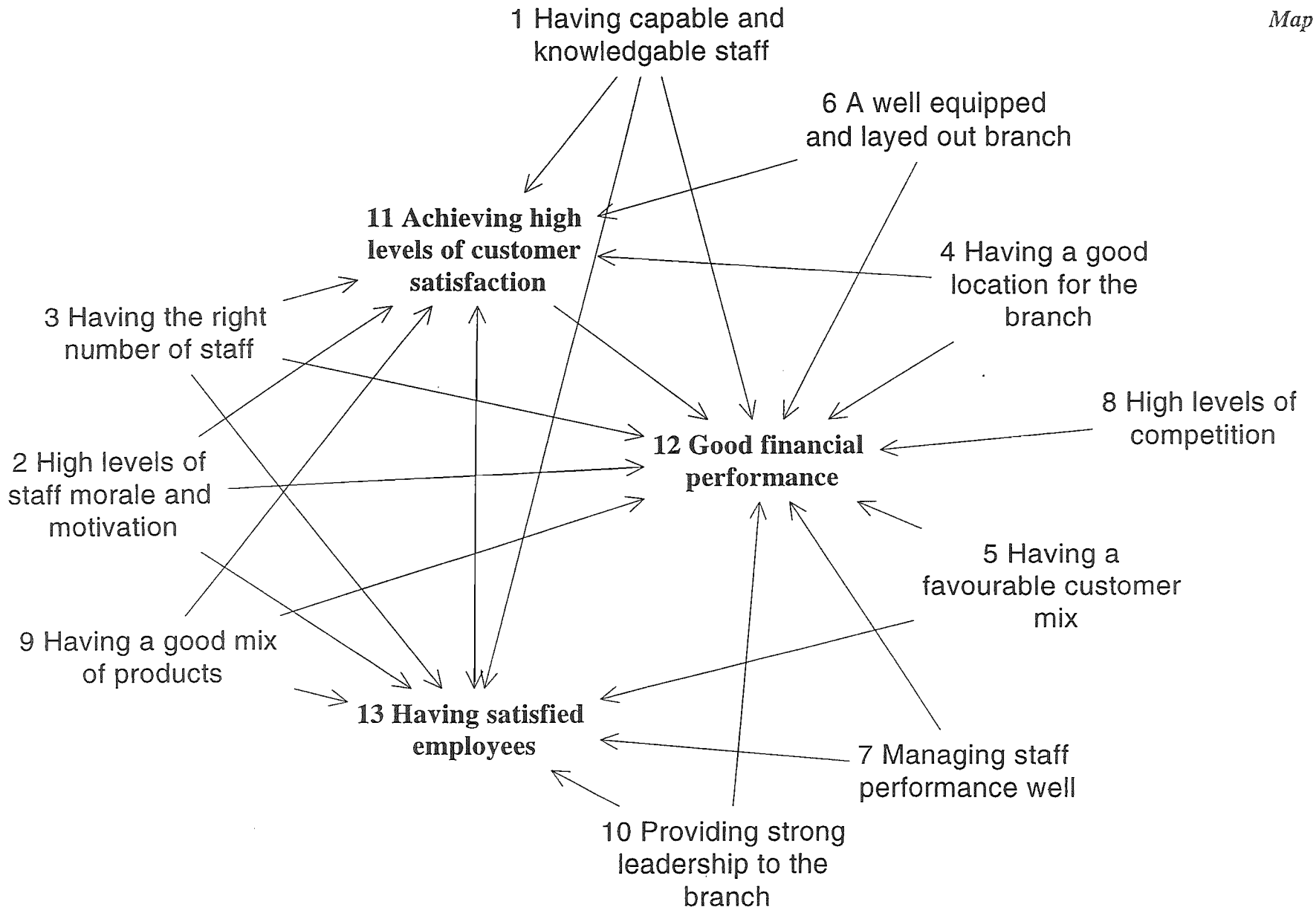
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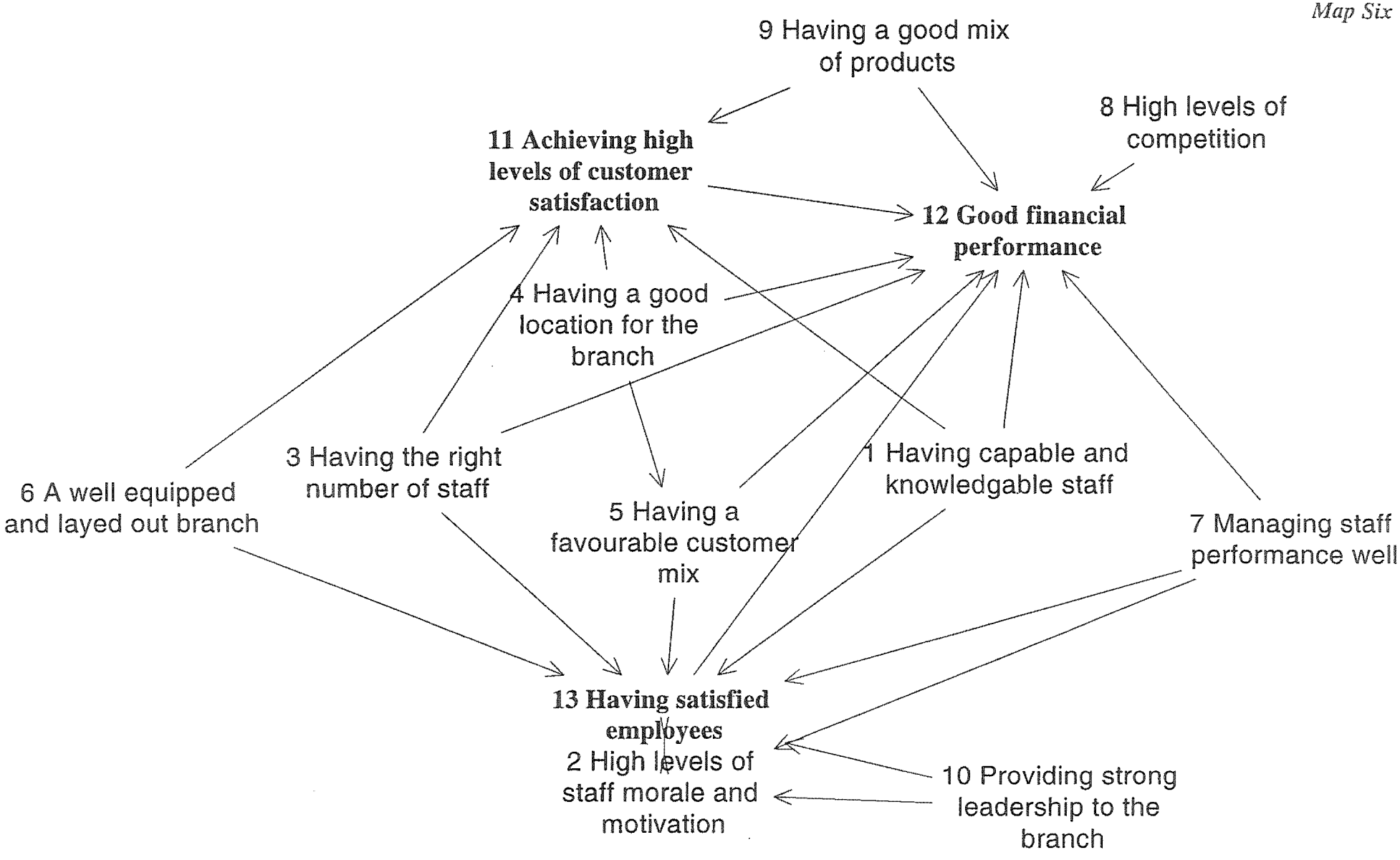
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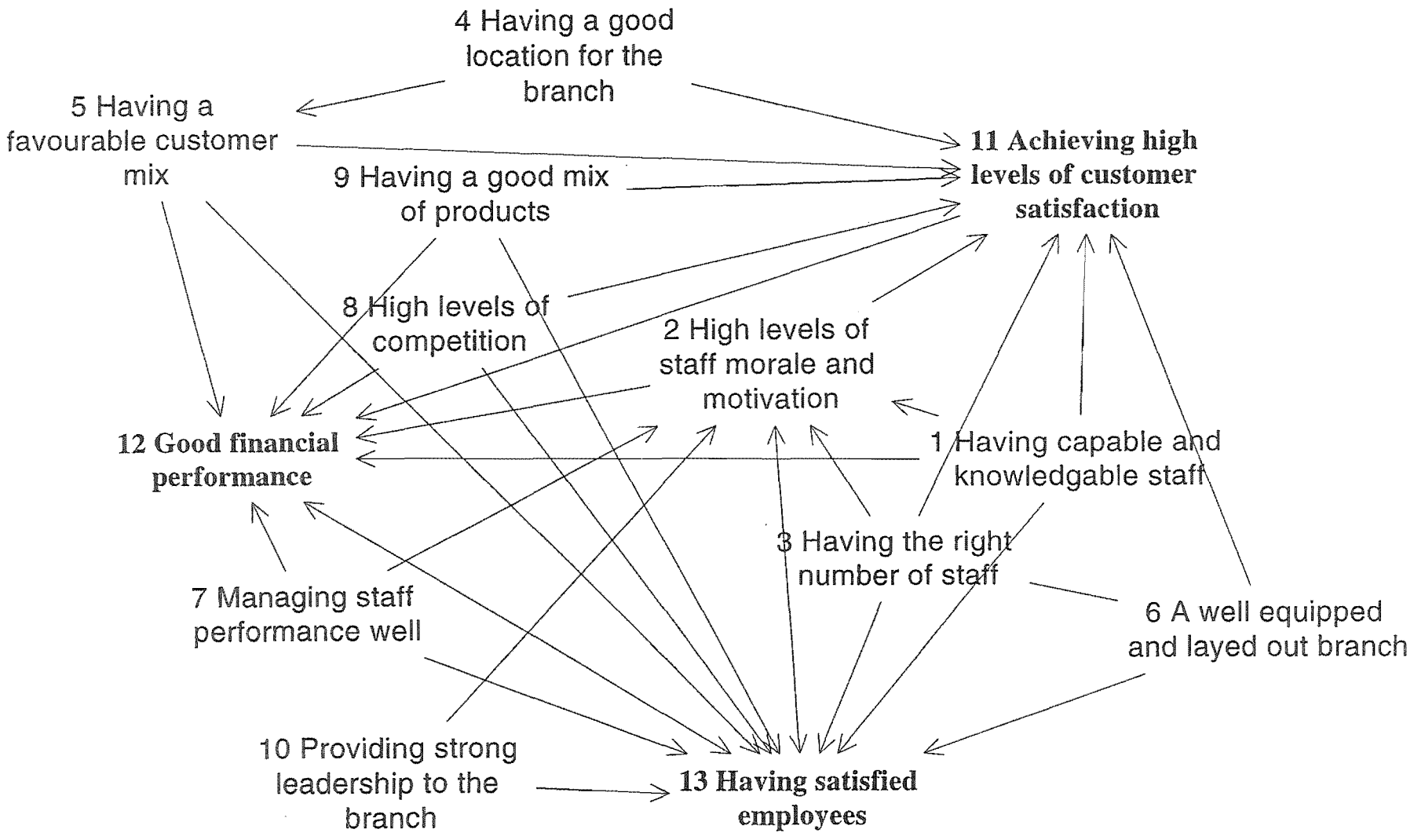
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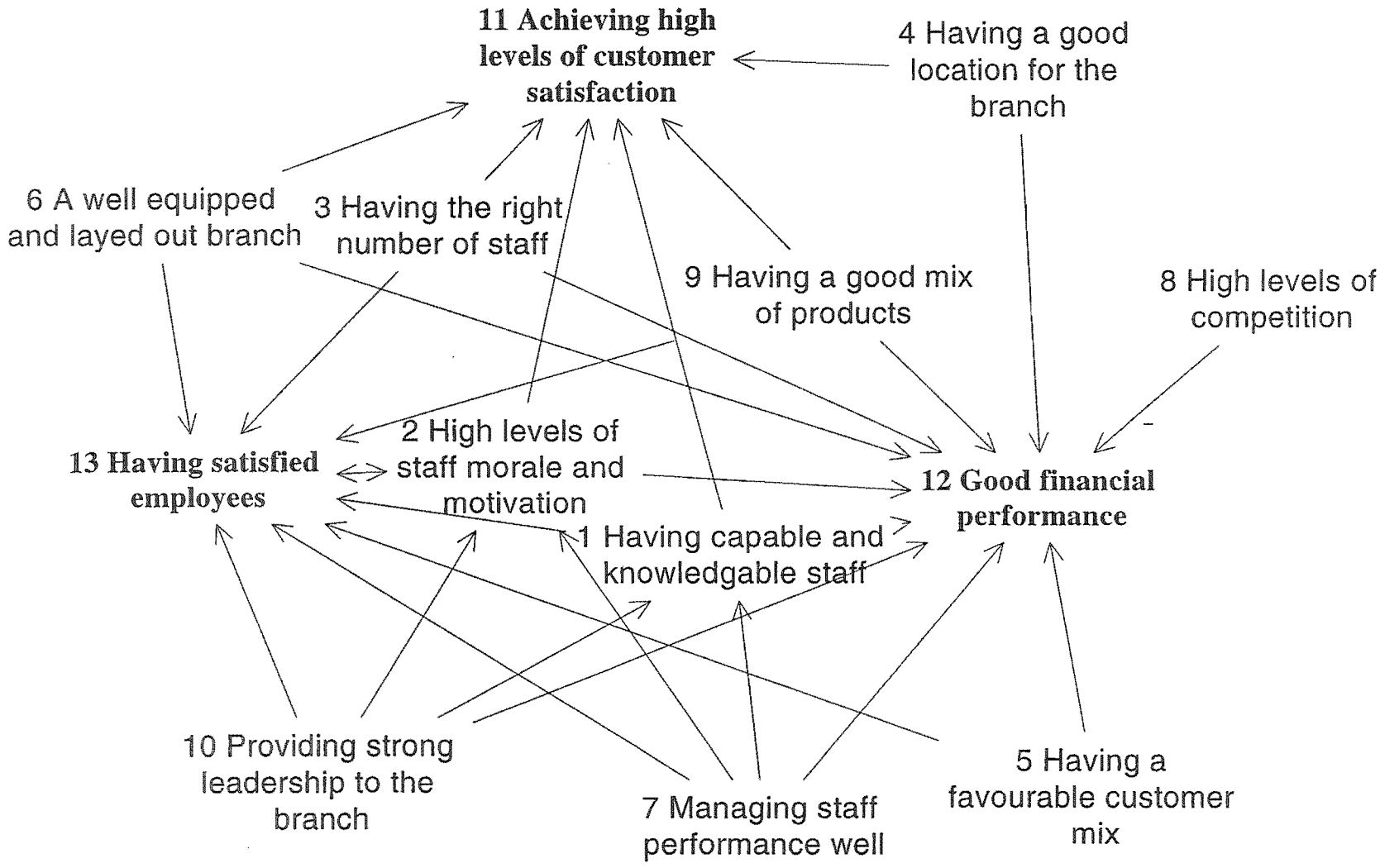
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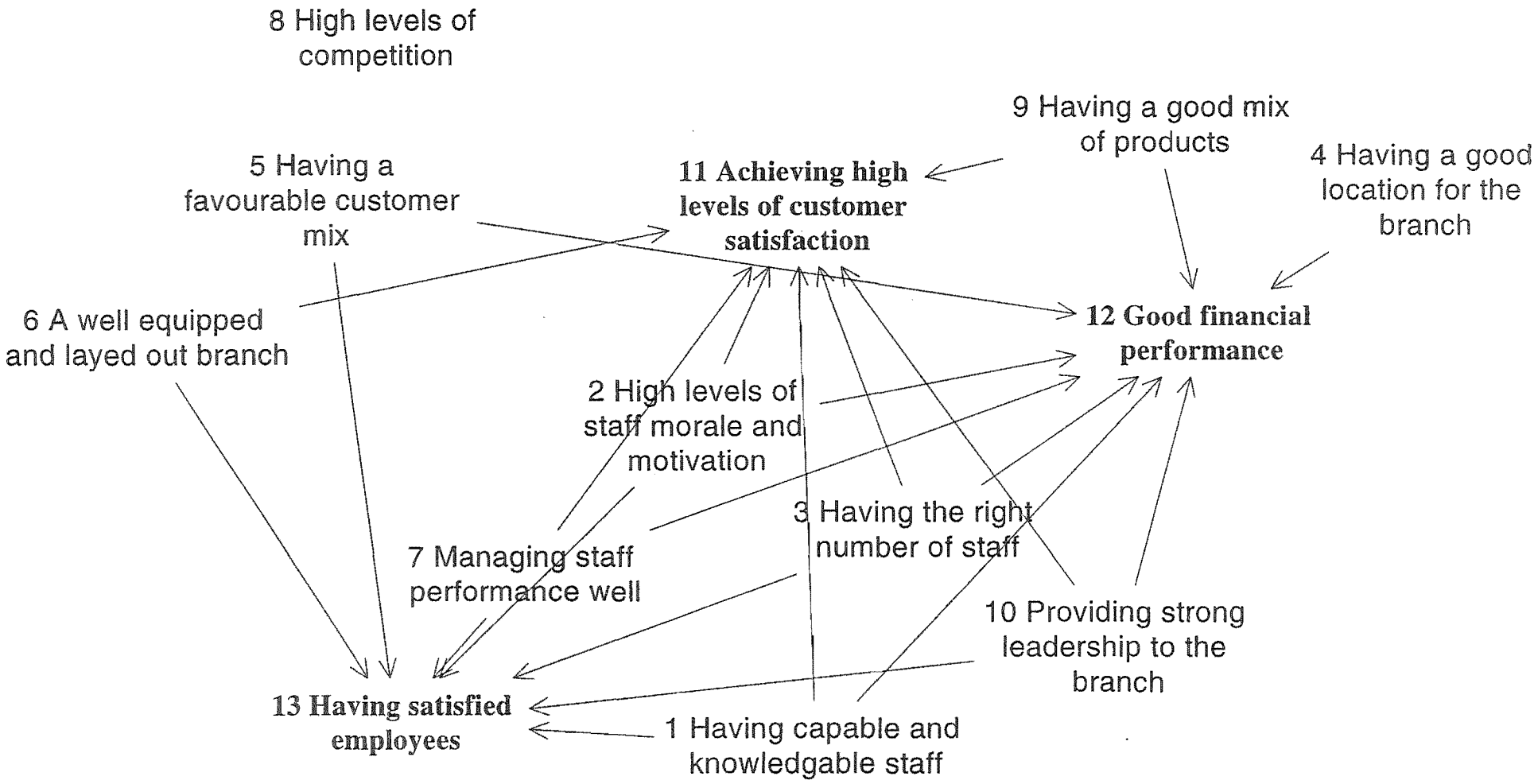
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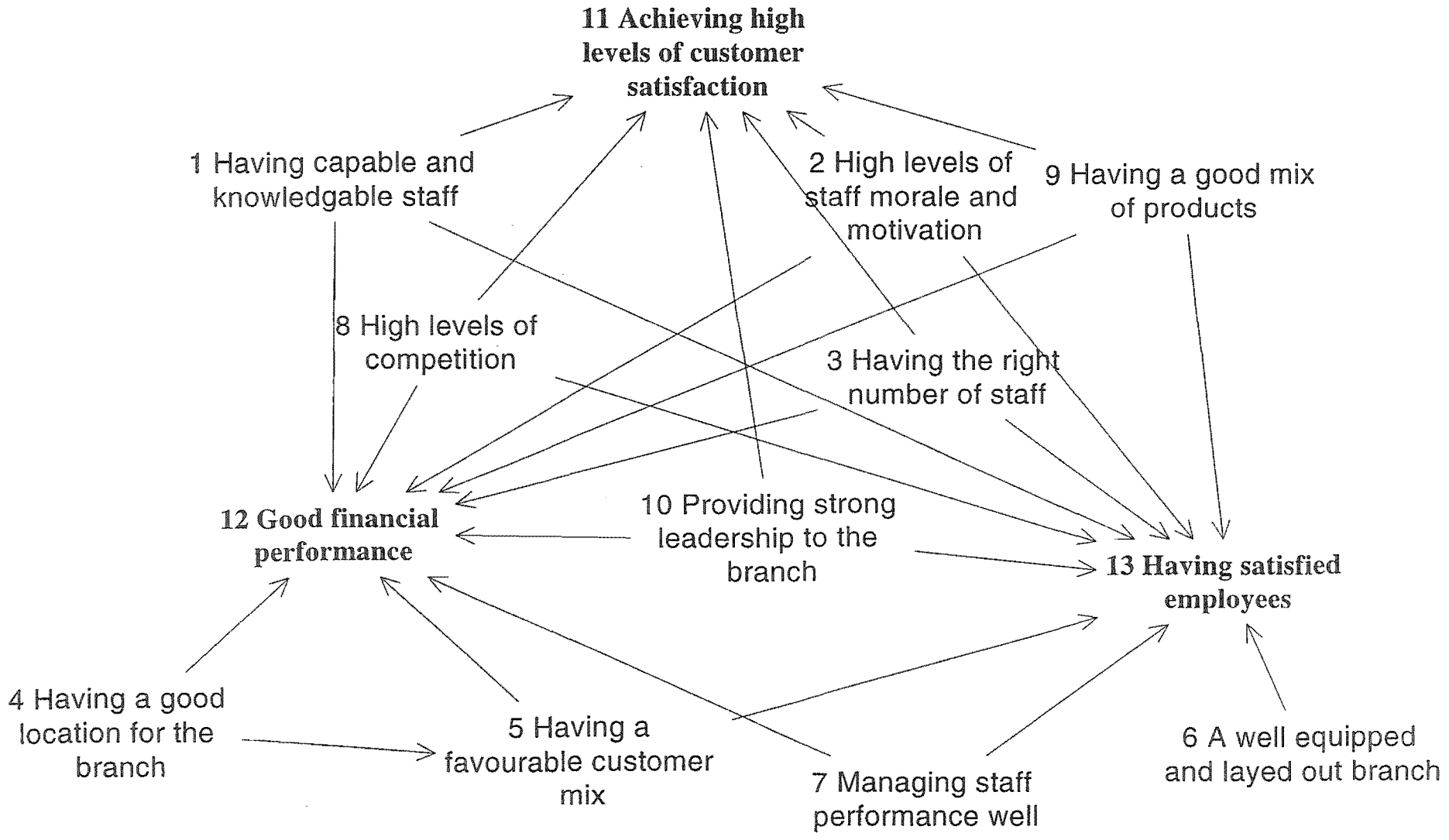
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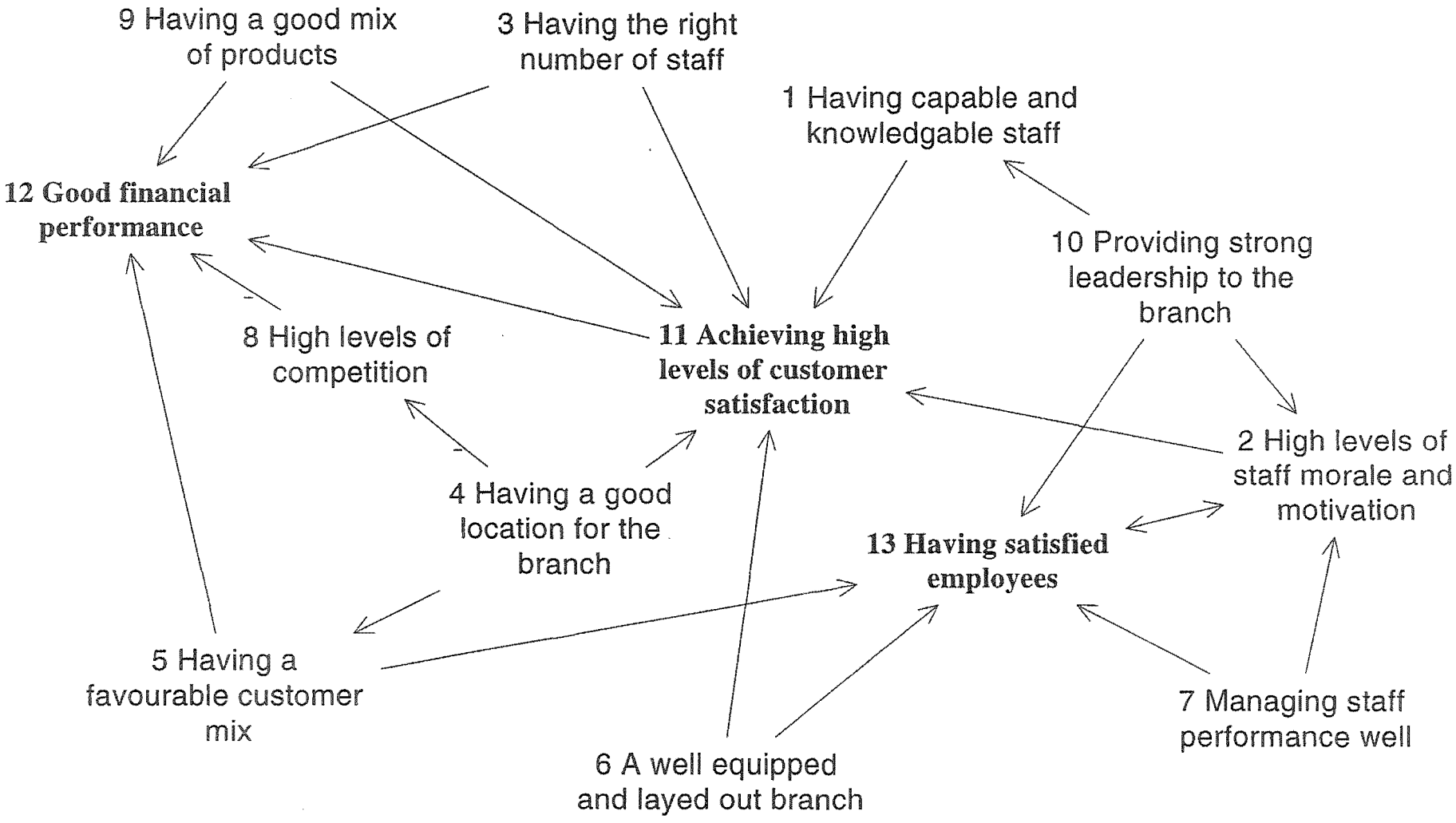
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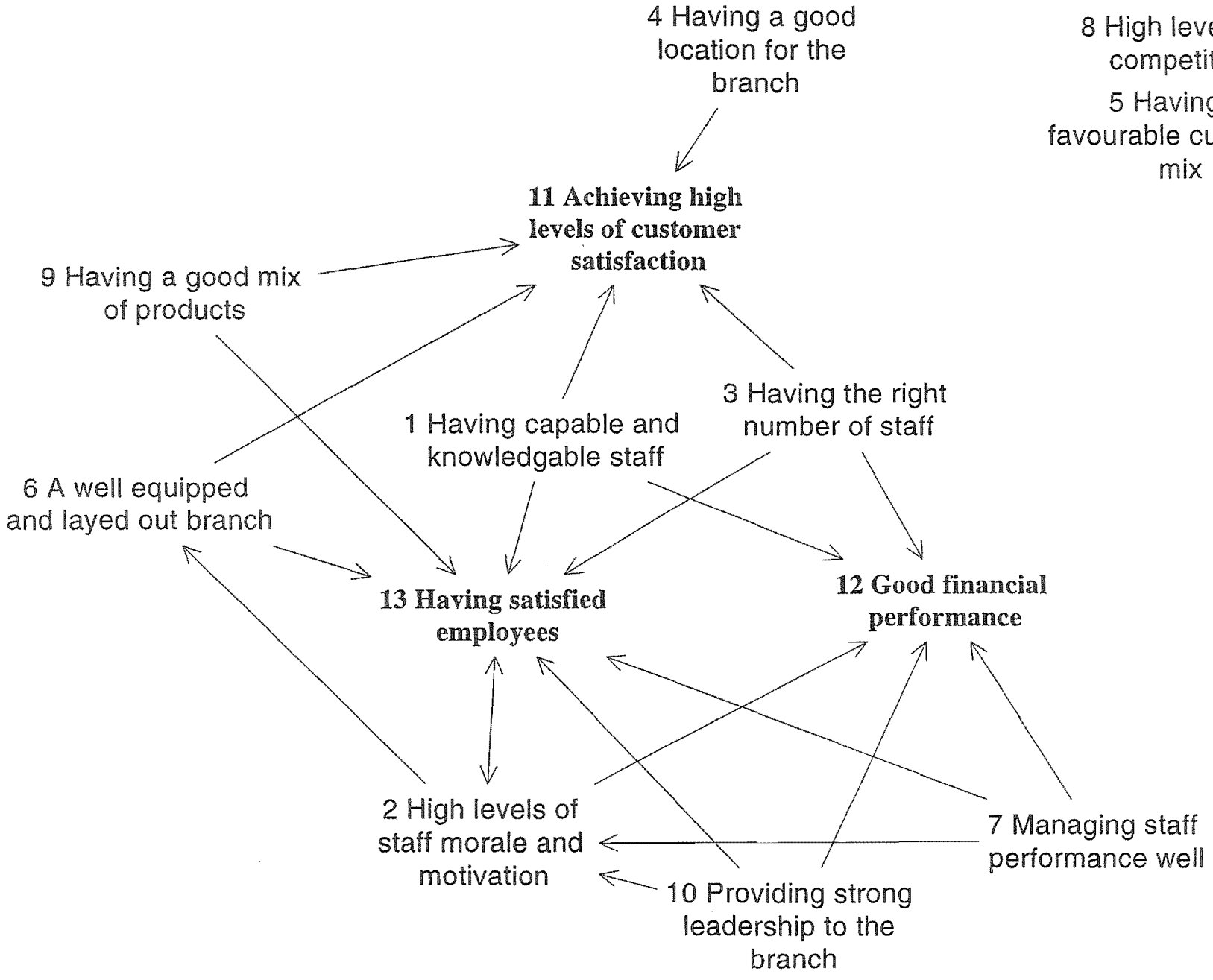
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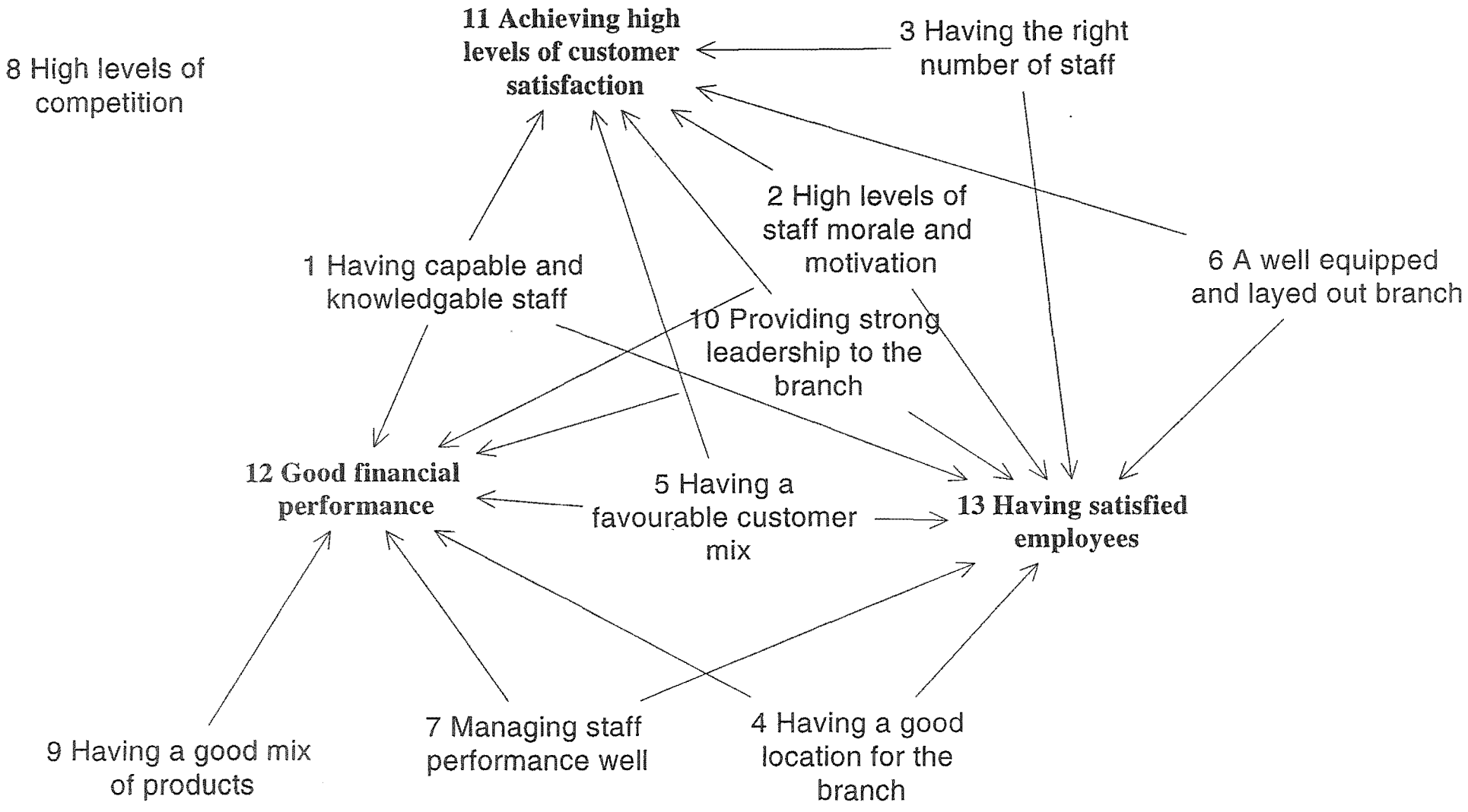
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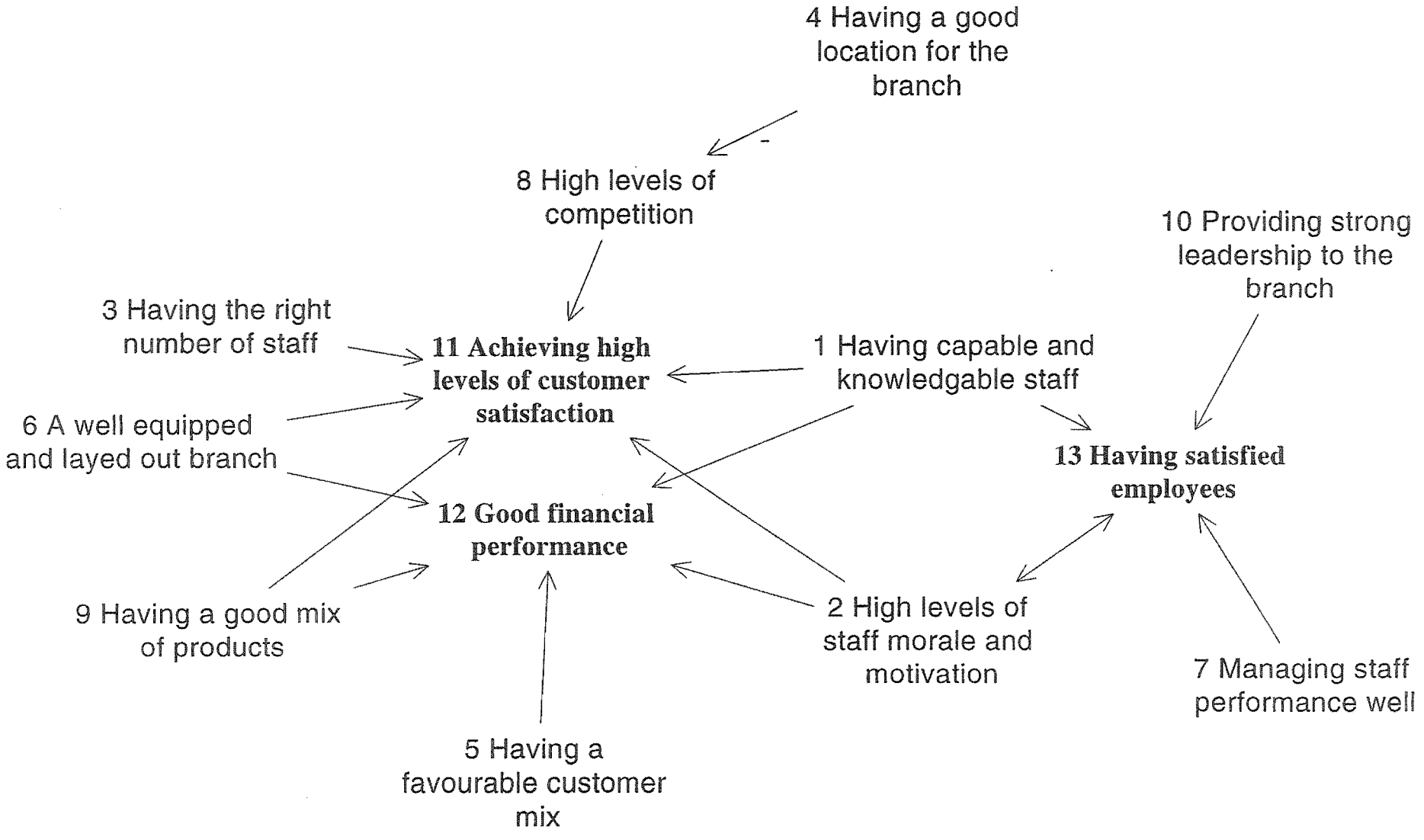
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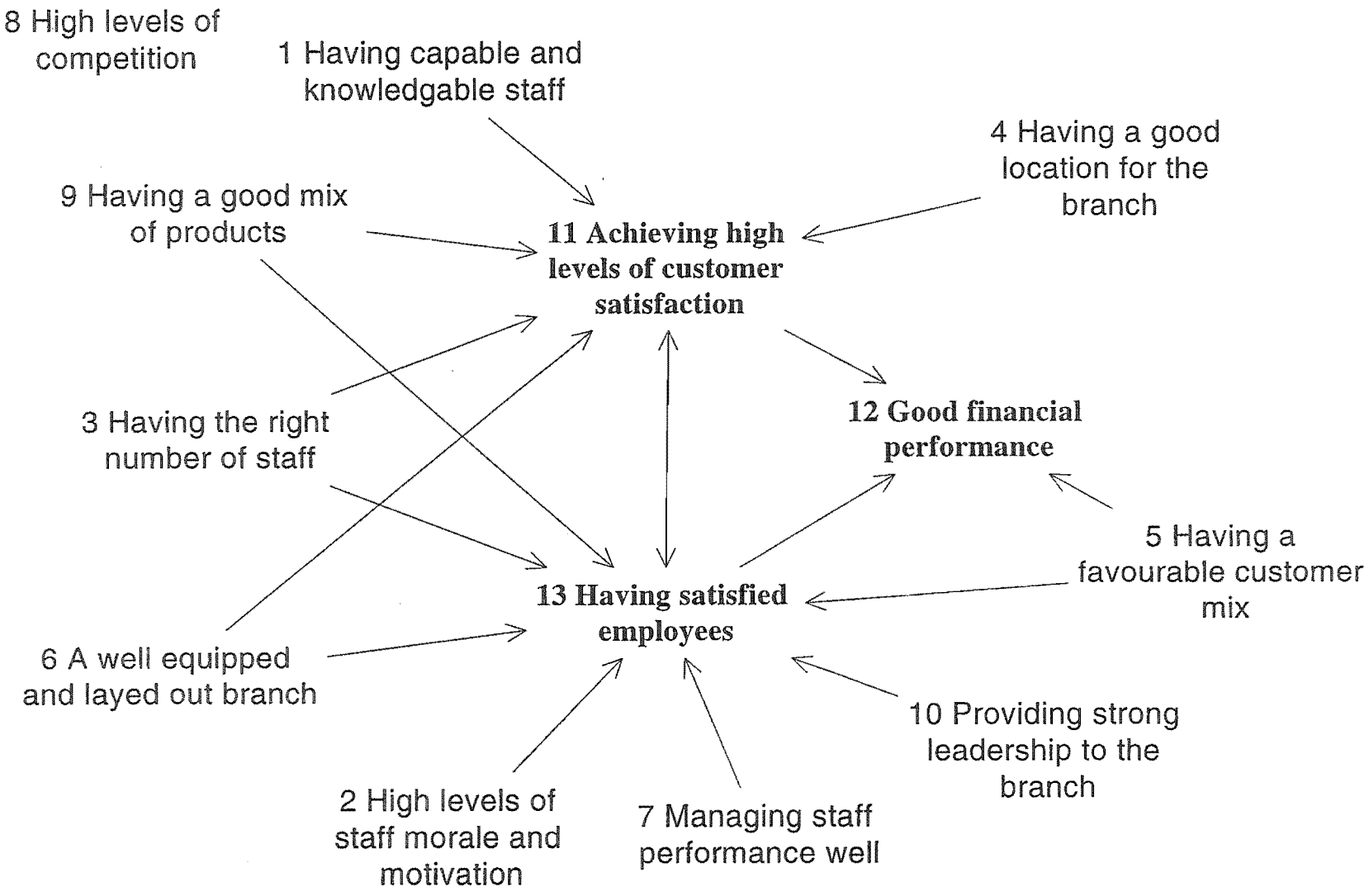
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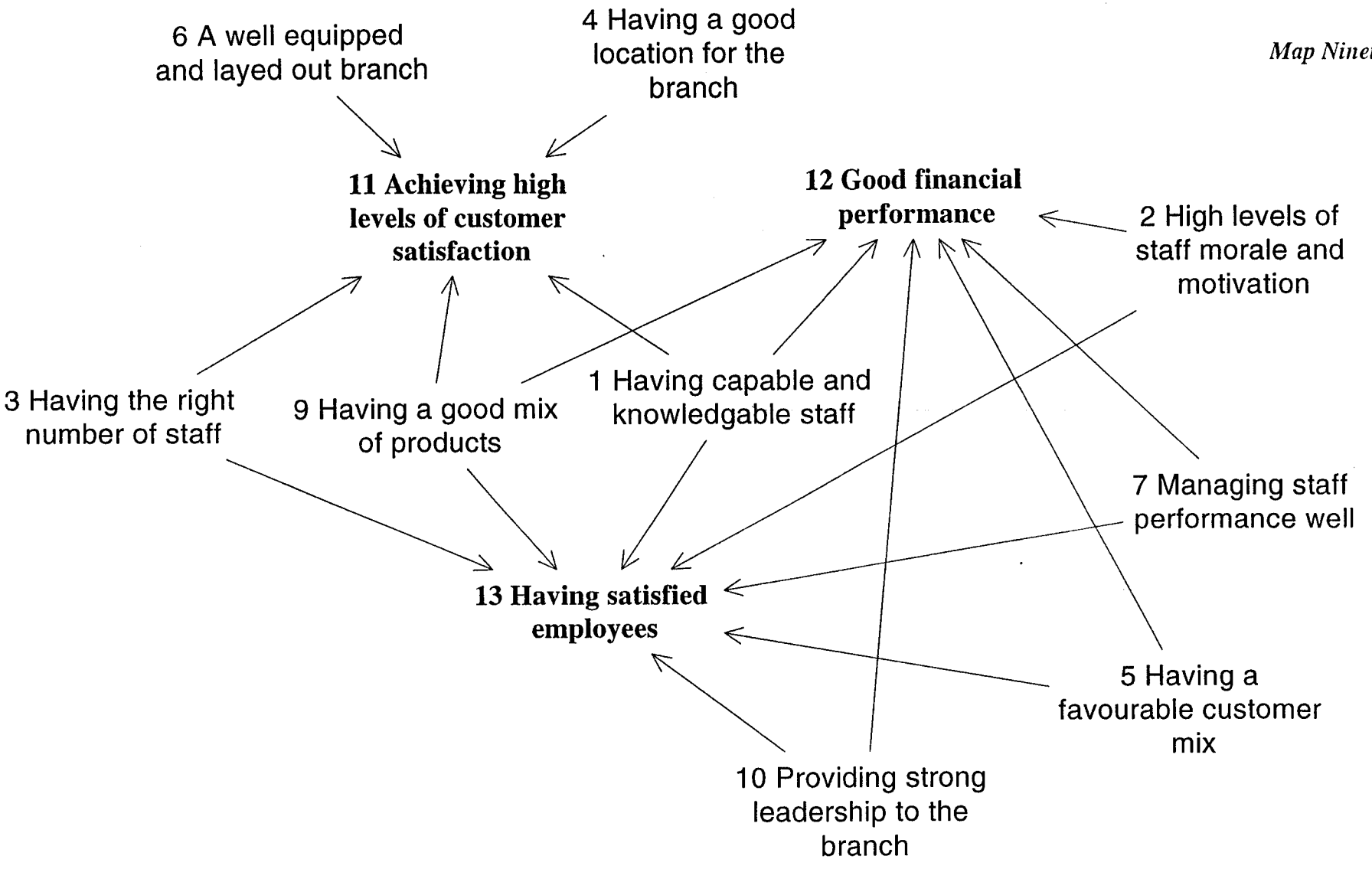
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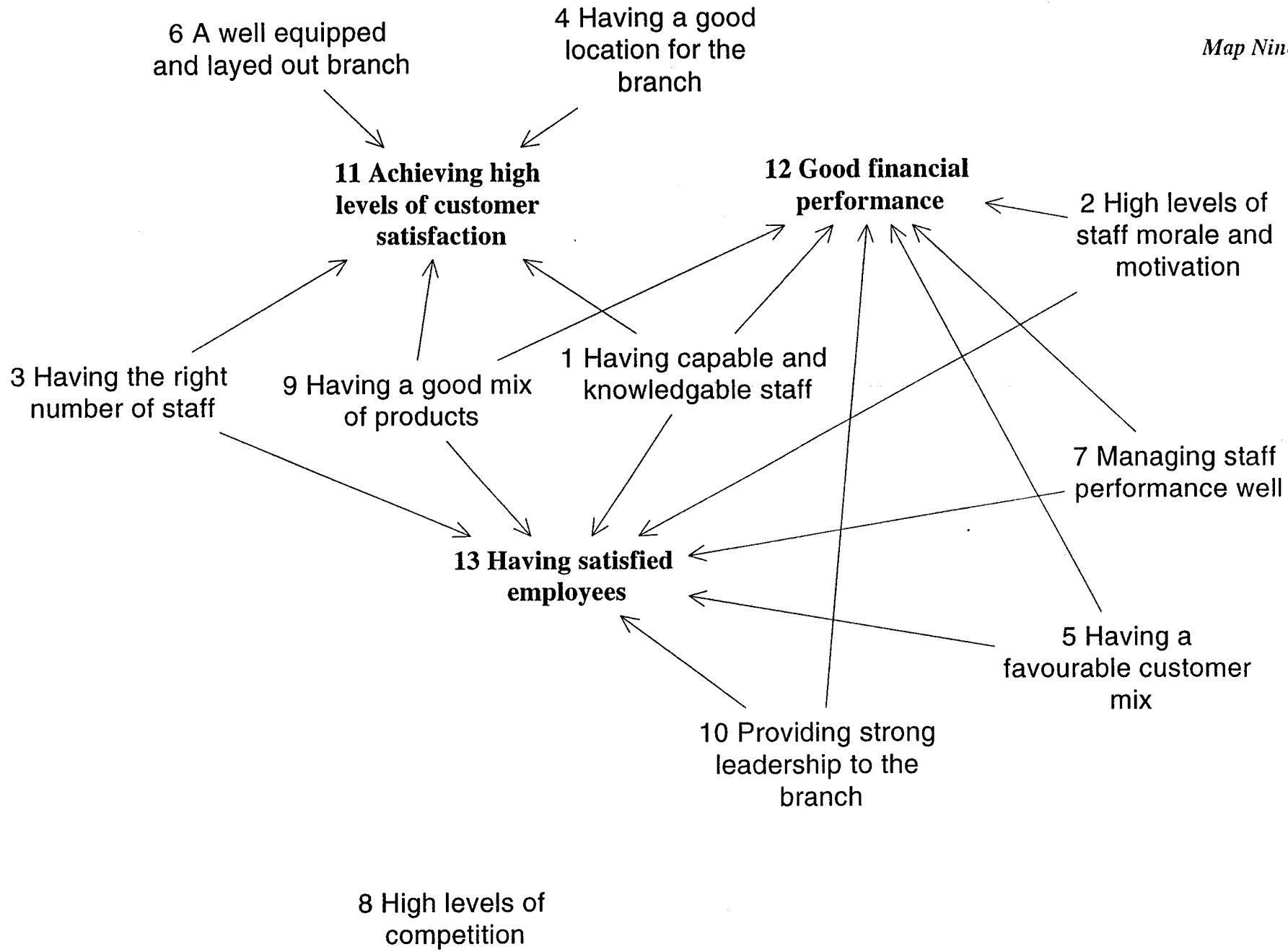
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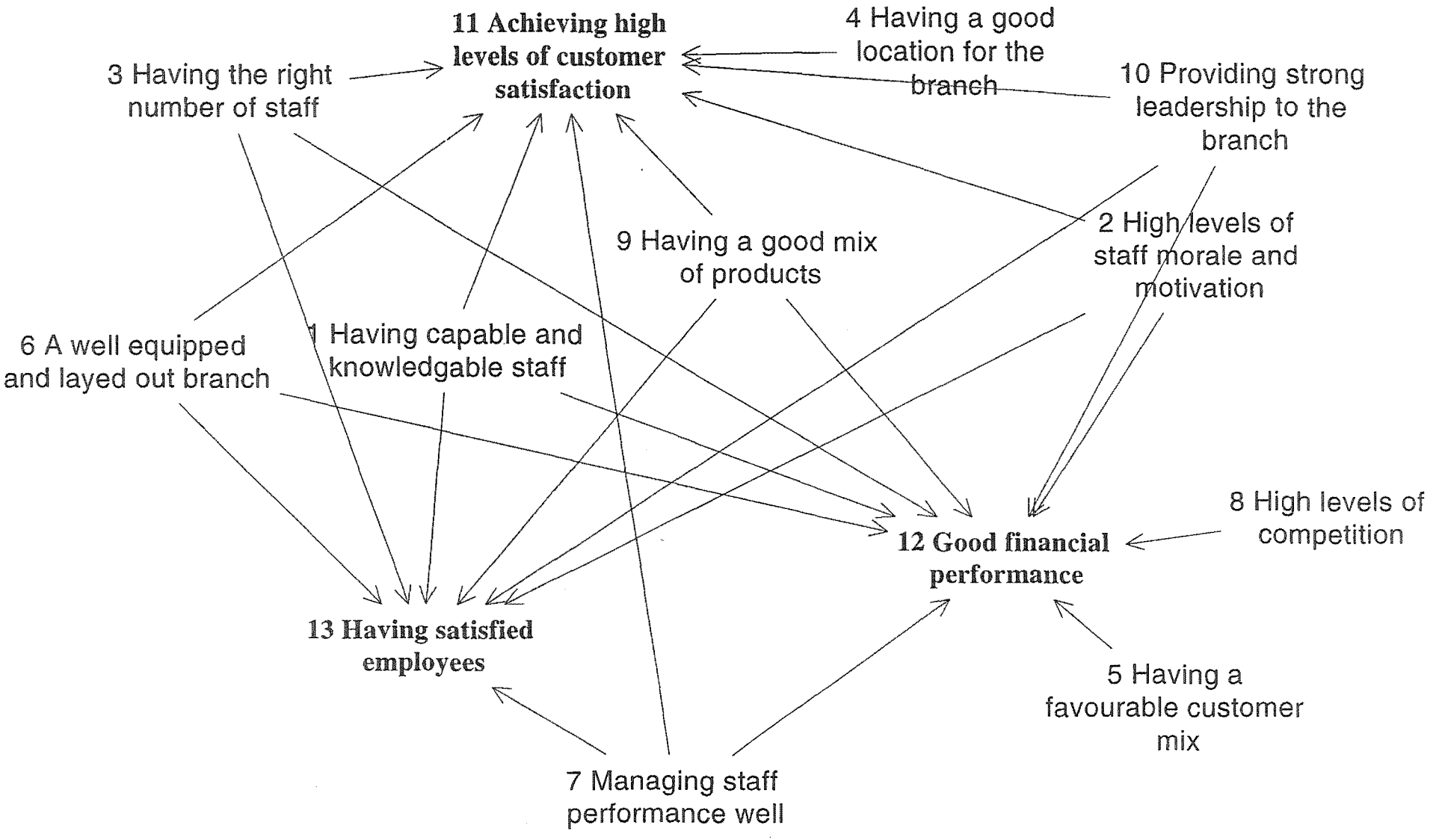
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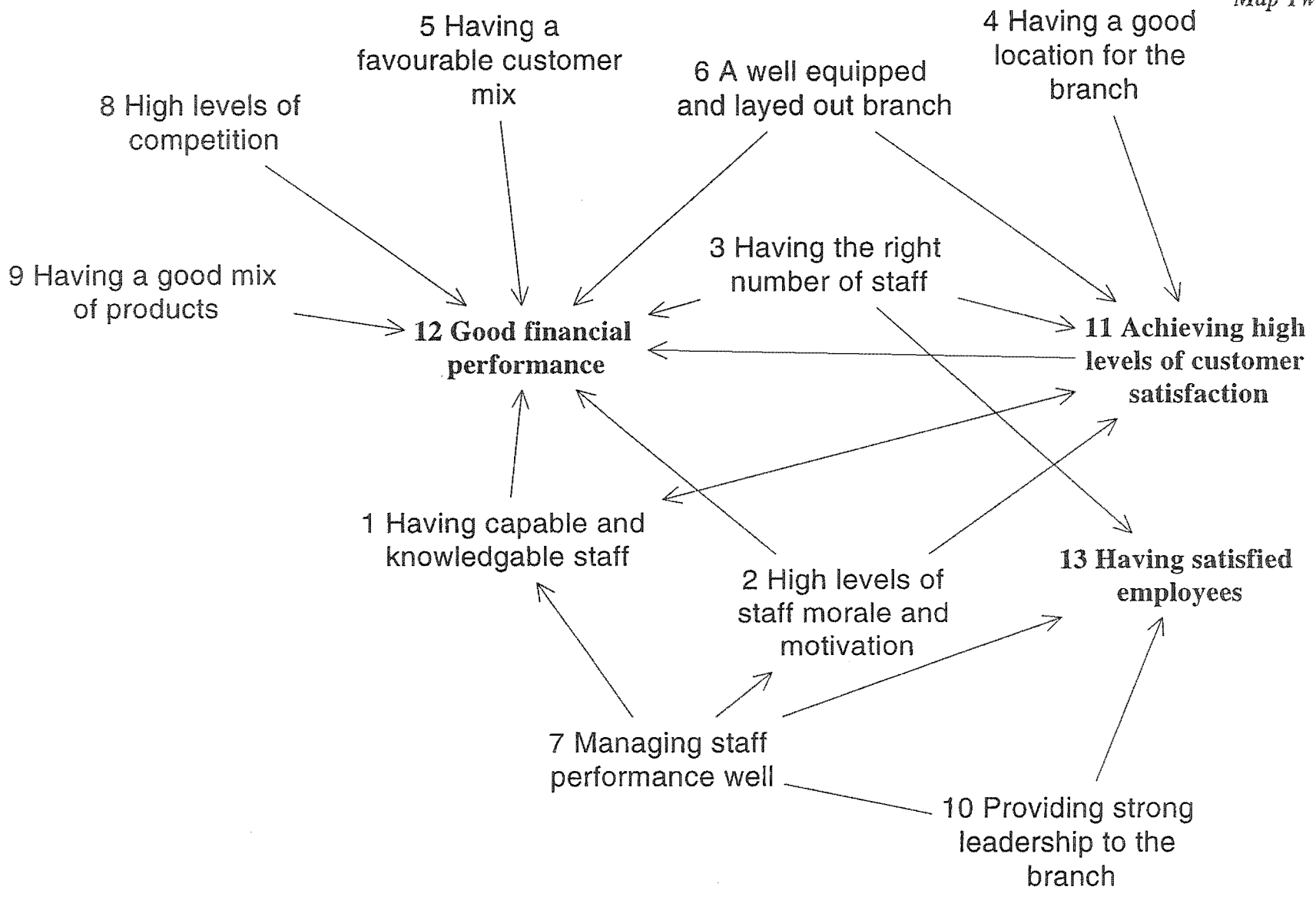
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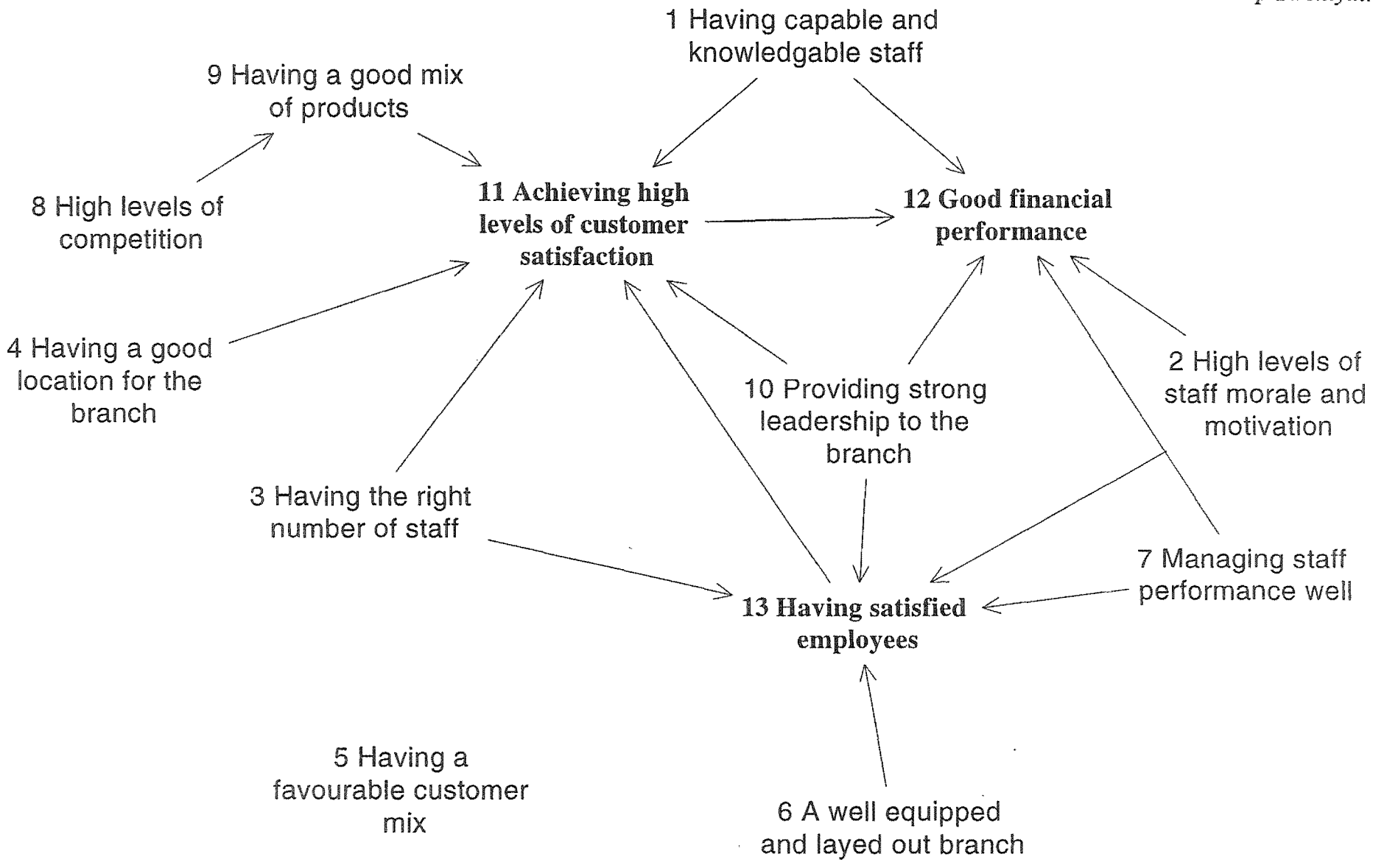
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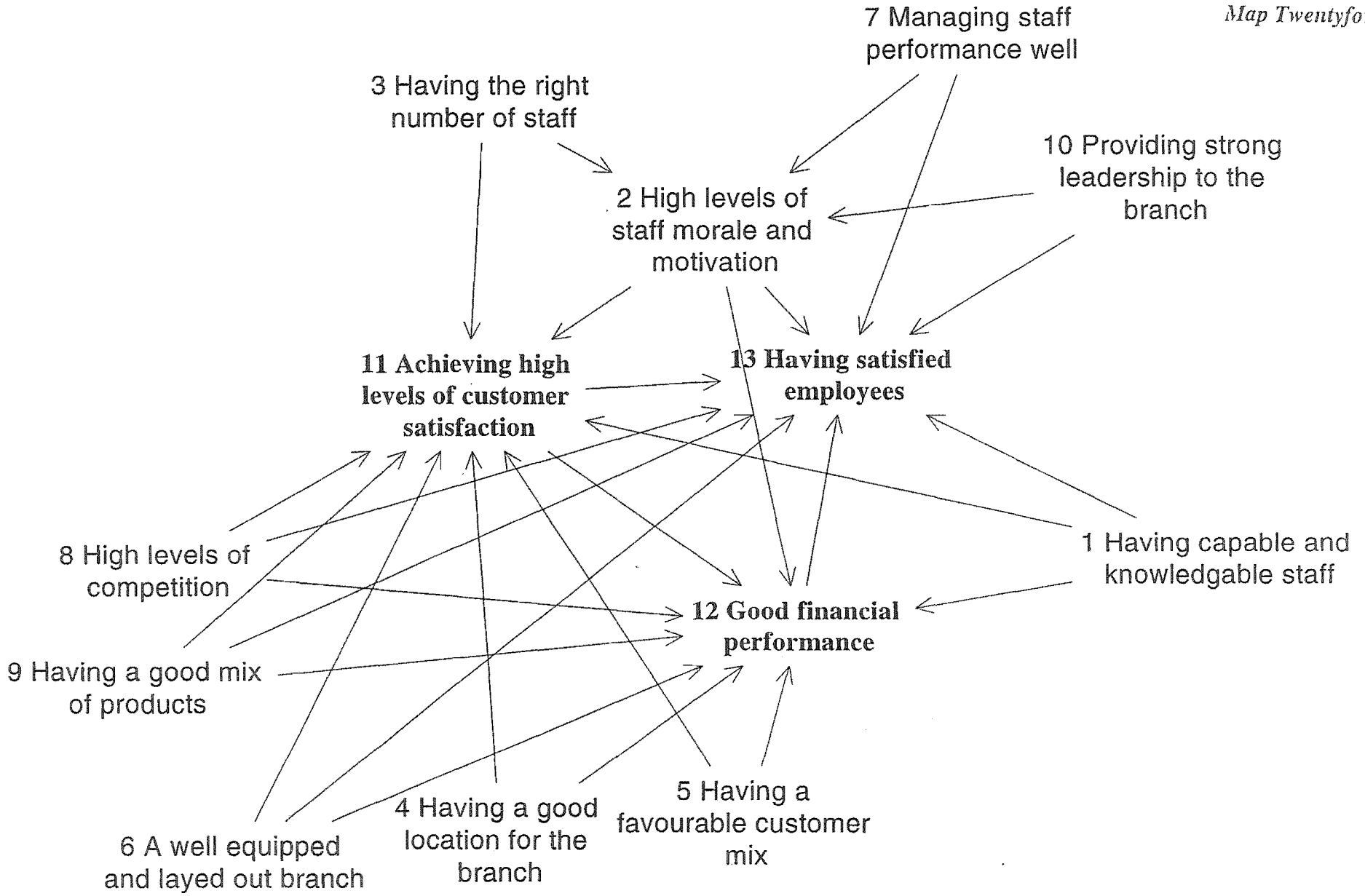
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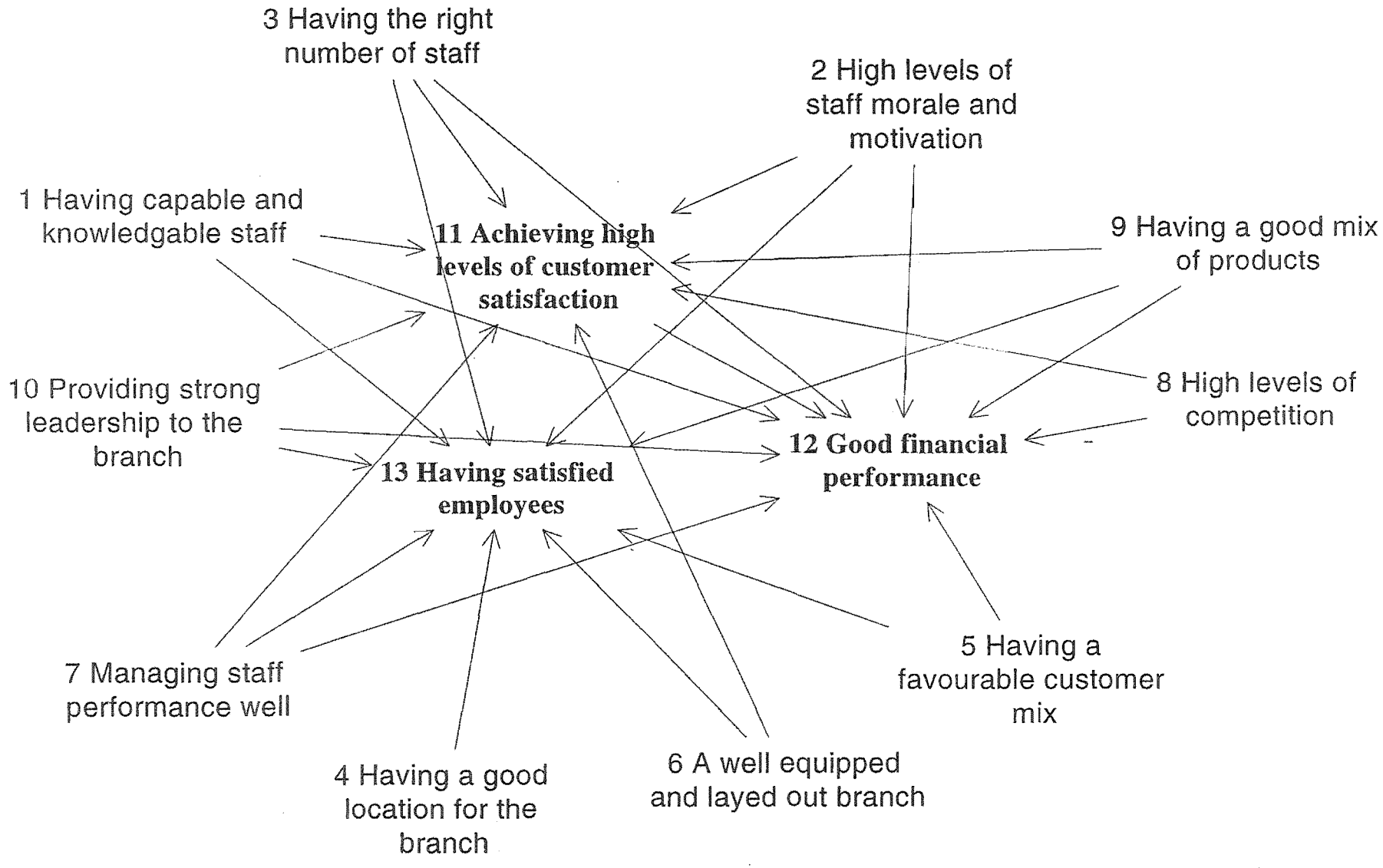
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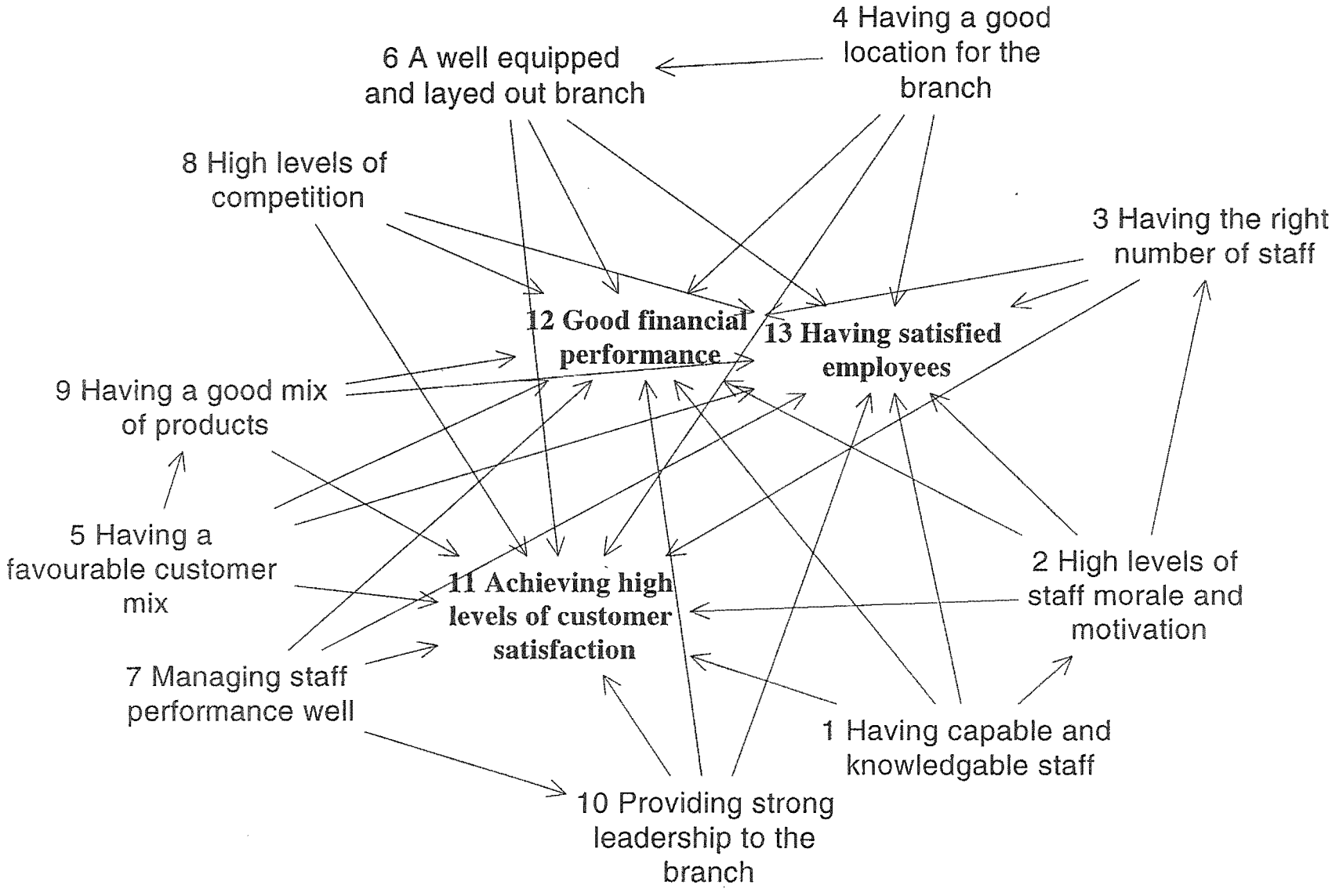
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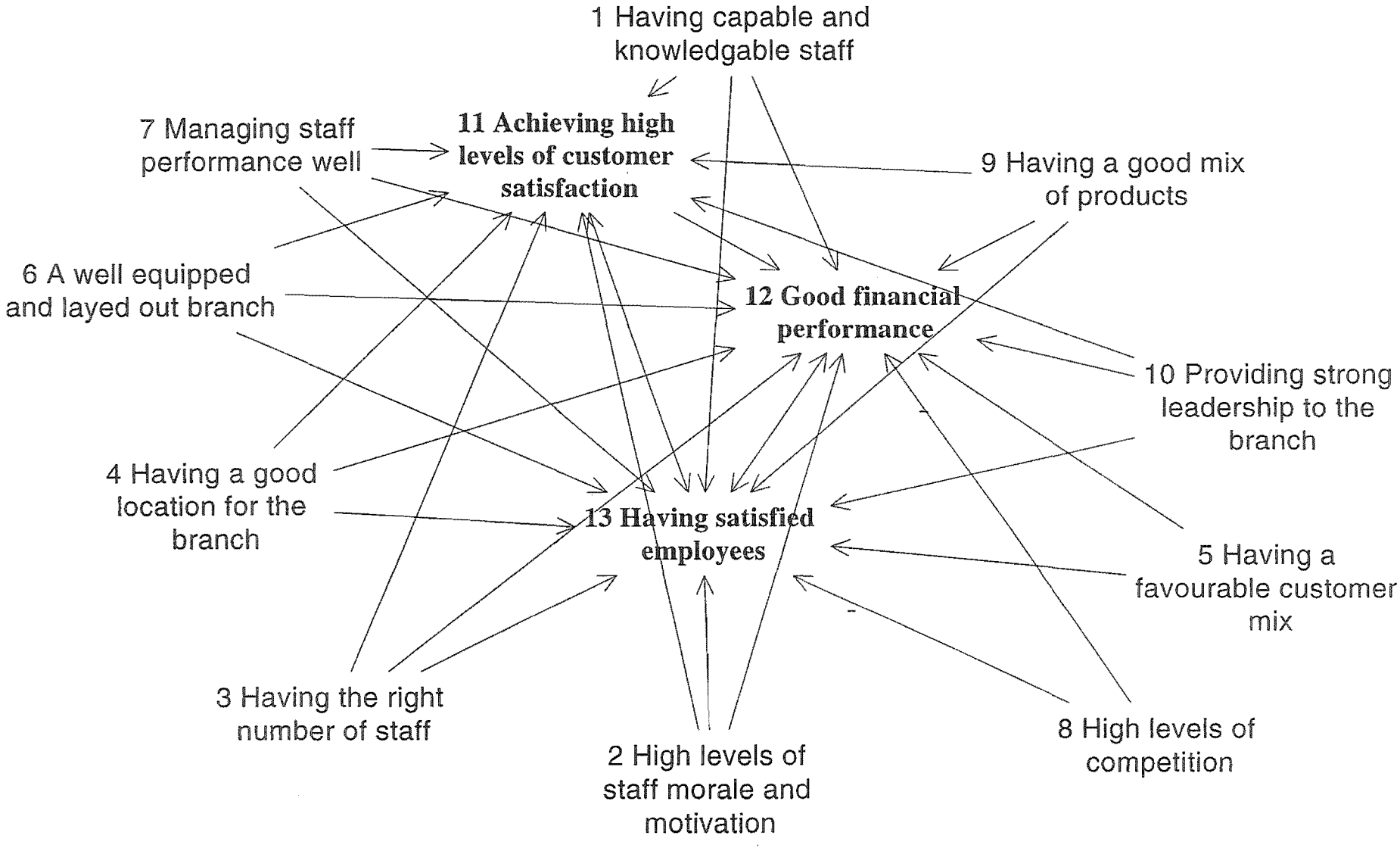
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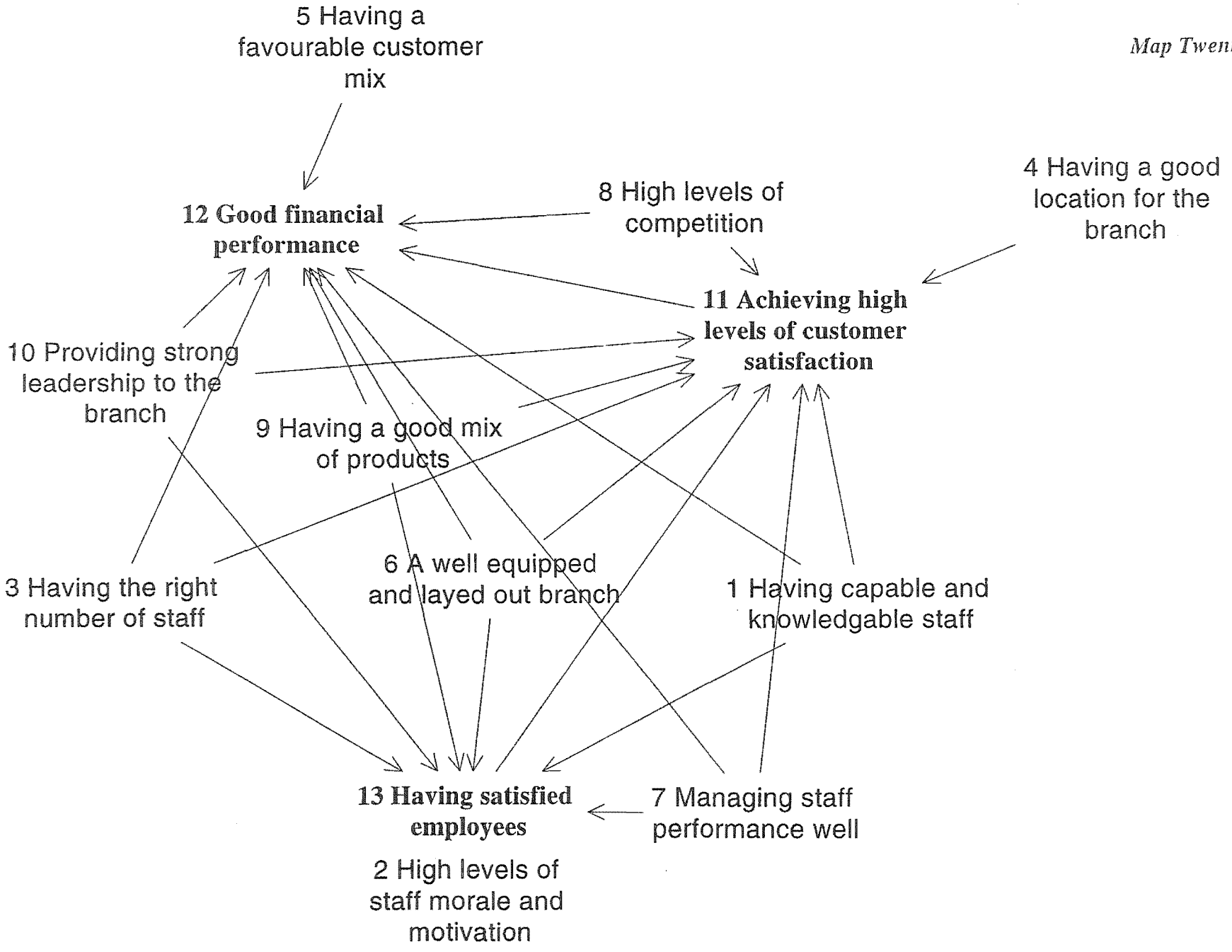
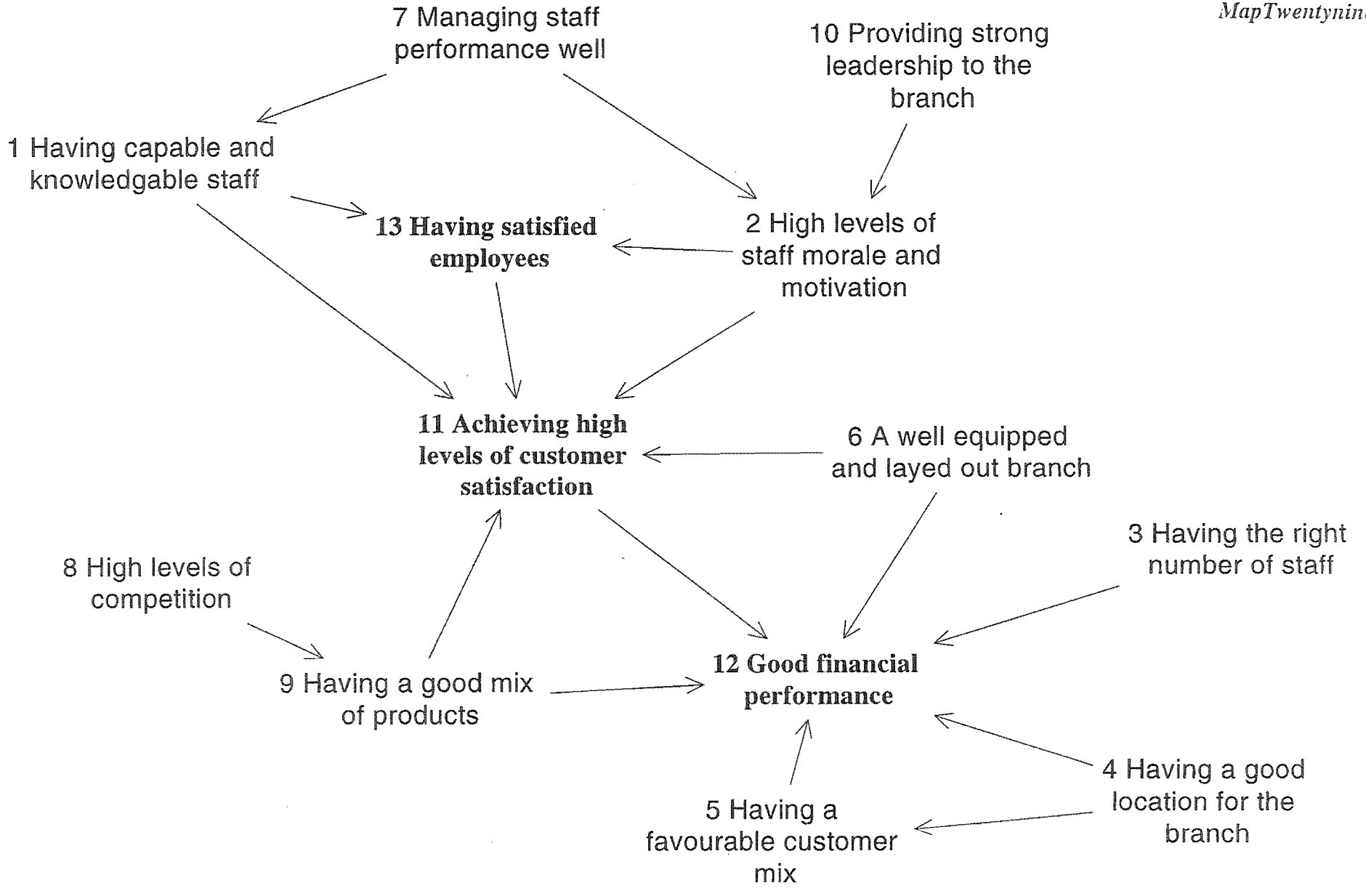

5 Having a favourable customer mix
4 Having a good location for the branch
8 High levels of competition
12 Good financial performance
11 Achieving high levels of customer satisfaction
10 Providing strong leadership to the branch
9 Having a good mix of products
6 A well equipped and layed out branch
3 Having the right number of staff
1 Having capable and knowledgable staff
13 Having satisfied employees
7 Managing staff performance well
2 High levels of staff morale and motivation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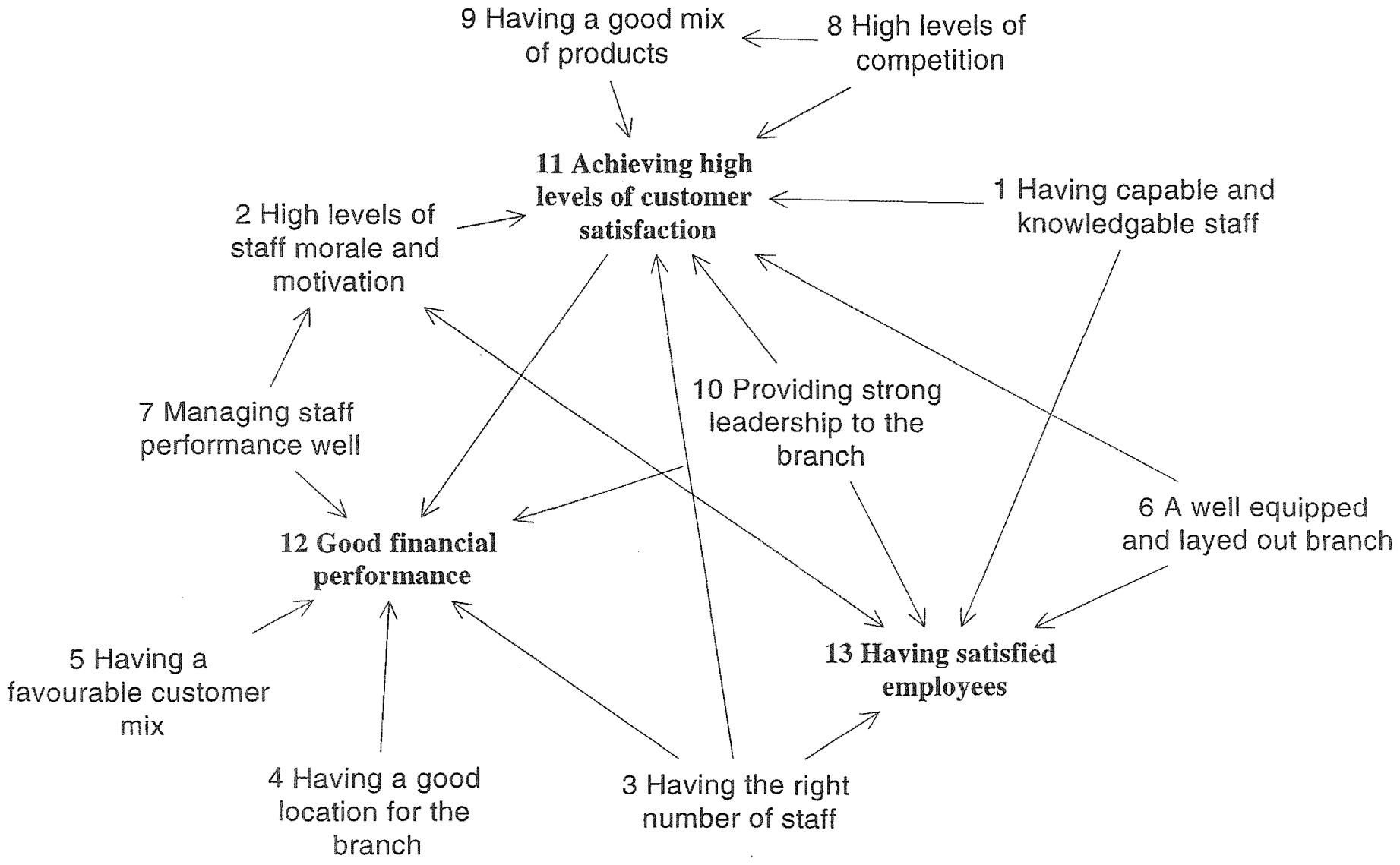
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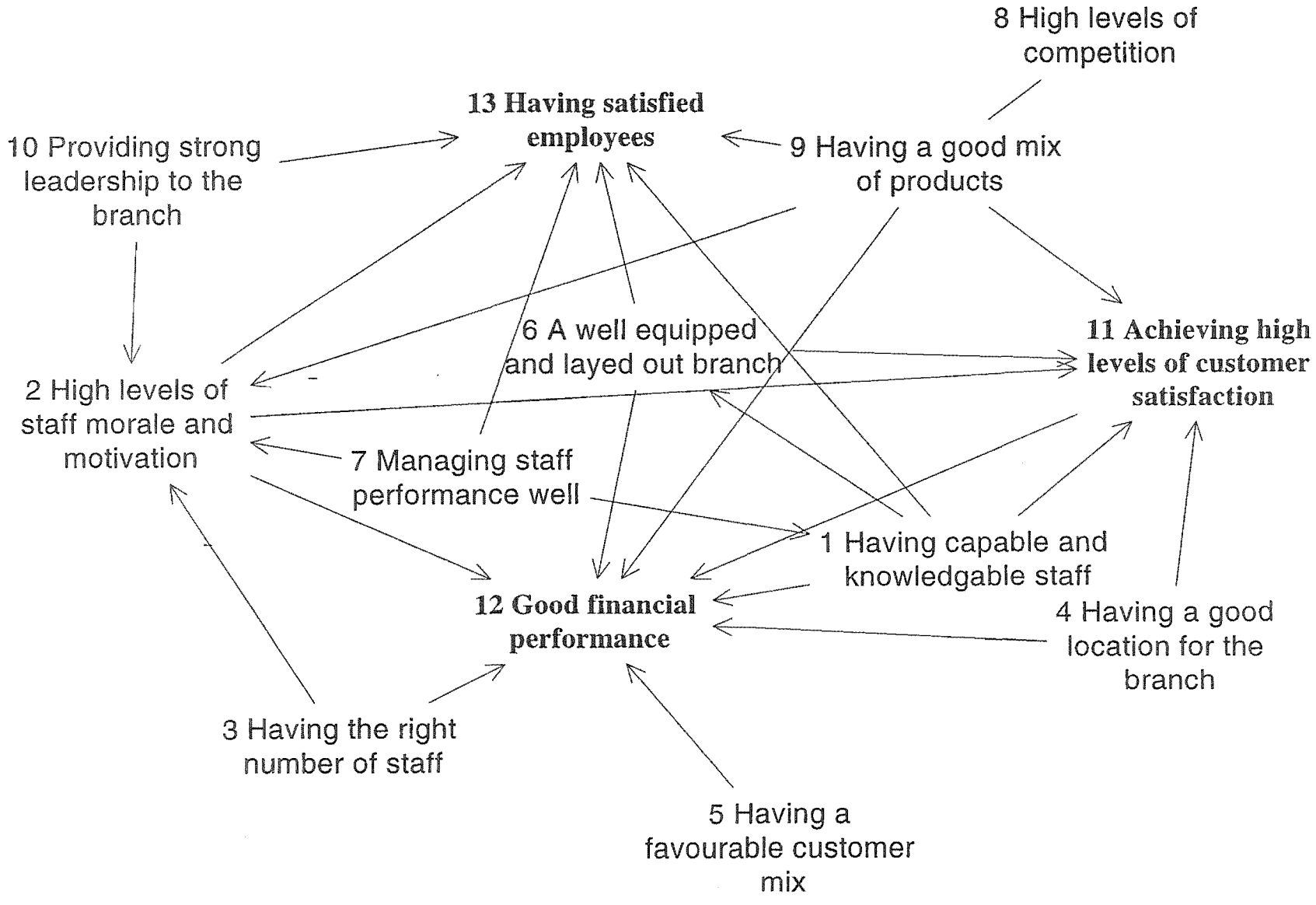
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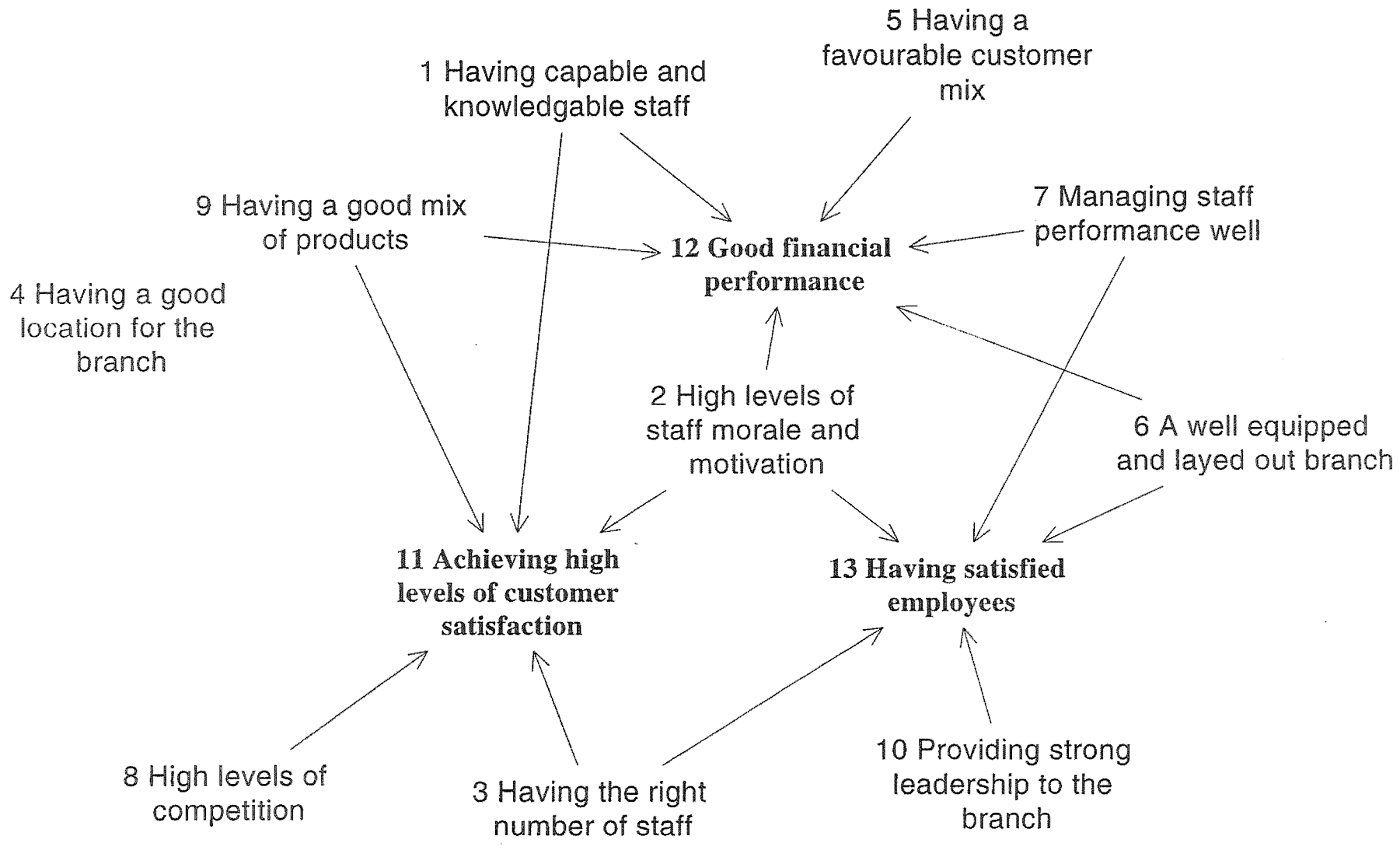
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